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WOMEN IN INDUSTRY

PRELIMINARY REPORT OF THE COMMITTEE ON THE HEALTH OF WOMEN IN INDUSTRY OF THE SECTION ON OBSTETRICS AND GYNECOLOGY

RECOMMENDATION TO THE COUNCIL ON INDUSTRIAL HEALTH

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GENERAL STATEMENT

Shortage of man power and economic pressure necessitate the employment of millions of women in industry. Sufficient medical data are not available to draft final recommendations about the effect of various kinds of employment on the gynecologic or future obstetric health of unmarried or childless women, on the pregnant, puerperal or lactating women or on mothers with home and family responsibilities. However, it is common experience in industry that women absent themselves from work much more often than men and that the duration of individual absences tends regularly to be longer. The available data do not clearly assign the responsibility for this tendency directly to obstetric or gynecologic functions (although it has been taken for granted by some) as against ordinary causes of disability which are equally applicable to men. All of these relationships need careful study over an extended period of time.

Therefore, the present report is preliminary in character and contains recommendations on which there is already substantial agreement. The committee expects subsequently to submit additional statements from time to time as greater experience and more accurate observations become available.

ESSENTIALS OF MEDICAL SERVICE IN INDUSTRY

The increasing employment of women in industry will intensify demands for competent medical supervision, especially in those industries using women for the first time. The Council on Industrial Health of the American Medical Association lists the essentials for such service as follows: [1]

A. A physician who takes genuine interest in a properly conducted industrial medical department and who is willing to devote regular hours to services inside the plant.

B. Industrial nurses with proper preparation, acting under the physician's immediate supervision or under standing orders, constitute the principal source of sustained industrial health activities for most small industrial concerns.

C. Industrial hygiene services, directed at improvement of working environment and control of unhealthful exposures provided by physicians and others under the guidance and assistance of the specialized personnel in the state and local bureaus of industrial hygiene.

D. A health program which will include:

1. Good first aid, emergency, and subsequent medical and surgical care for all industrially induced disability.

2. Good correlation with the family physician [2] and other community health agencies for proper management of nonoccupational sickness and injury.

3. Health conservation of workers through physical examination and health education.

4. Good records of all causes of absence from work as a guide to the establishment of preventive measures.

Consulting services in industry commonly include dermatologists, ophthalmologists, surgeons, internists, neurologists, neurosurgeons, psychologists and psychiatrists and other recognized medical specialties. The committee recommends that competent gynecologists and obstetricians be included in the consulting services where substantial numbers of women are employed.

GENERAL HYGIENE FOR WOMEN IN INDUSTRY

Ordinary industrial hygiene activity, safety practice and medical or engineering control over conditions of work apply to men and women alike. However, additional safeguards have been set up in nearly every jurisdiction as supplementary protection for the health of women. Physicians called on to exercise supervision over employed groups should familiarize themselves with all applicable statutes or health codes. However, the committee does wish to emphasize the following special considerations:

A. *Type of Work.*—Generally women work at home in addition to a regular shift in the plant. A wife and more especially a mother may be engaged as many hours at housework as in industry. Such excessive burdens are undesirable, especially during pregnancy. Since rest is difficult in the home during the day, mothers should work either the day or afternoon shifts.

Women have been employed by almost every industry successfully. They are particularly suitable where manual dexterity is involved. This applies to work in the assembly lines, with small drills, with punch presses, at mailing and filing, in the preparation of food, in textile or weaving industries, in small arms plants and in many other war industries. Lifting, pulling, carrying or shifting weights should not be beyond a reasonable and comfortable capacity for the individual. The maximum units for weight lifting should not exceed 35 pounds probably. Weight factors should be

Read before the Fifth Annual Congress on Industrial Health, Chicago, Jan. 12, 1943.

1. An Industrial Health Program for a County Medical Society, J. A. M. A. **121**: 259 (Jan. 23) 1943.

2. Or obstetrician and gynecologist.

lower for the gravid individual and also for older women and those with vaginal wall relaxations or beginning prolapse.

B. *Working Garments and Equipment.*—The woman worker should have the same clothing protections as the man. Slacks will be preferable to skirts in certain types of work. Blouses with long dangling sleeves may be dangerous about machinery. It is equally important that appropriate garments and protection be afforded to those exposed to excessive heat or cold. The customary protection for the eyes, hands and the hair is self evident. In general, women should use low heeled comfortable shoes, and this is most important for those who are gravid.

C. *Optimum Hours of Work.*—The maximum number of hours for women employment has been established in many localities. The nature of the work as well as the urgency of the situation may influence somewhat the number of hours employed per day or per week. Ordinarily, women may be employed from thirty-six to forty-eight hours a week, depending on the local statutes, the type of work and the individual's capacity.

D. *Industrial Sanitation.*—The standards for adequate lighting and ventilation are equally applicable here. An adequate number of toilets and lavatories properly maintained and reasonably accessible constitute part of the necessary rules of good hygiene. Restrooms where the pregnant, menstruating or ill women may rest or recline should be provided. Rest periods are desirable and may be conducive to more production.

E. *Supervision.*—Adequate supervision at the plant is necessary, particularly a foreman or forewoman trained or experienced in the supervision of women employees. The management of any plant not accustomed to the employment of women would do well indeed to consult plant physicians and others experienced in the problems of women employees before employing women. Even the placement of women in another division in the same plant may bring about new problems.

A matron or "councilor service" has been found unusually successful in several large plants where a large number of women are employed.

The evaluation of movement and monotonous work is one of the problems of the plant physician. Likewise, constant sitting or prolonged standing is more disturbing to the gravid patient. Adjustments should be made in such a fashion that the employee does not work in a strained position at benches, tables and machines.

TRANSPORTATION OF WOMEN TO AND FROM WORK

Transportation of women to and from work may be even more difficult than that of men. Adequate protections and shelters should be afforded women between the transportation system and the place of employment.

PHYSICAL EXAMINATION AND PLACEMENT

A. *General Recommendations.*—The general recommendations developed by the Council on Industrial Health apply. These are:[3]

Preplacement physical examinations should be complete. They should be used only for the purpose of assigning work adjusted to the physical and temperamental fitness of the applicant and to maintain safe and healthful employment for all employees.

Subsequent physical examinations should be complete enough to provide positive health protection for all workers and to safeguard public welfare. Repetition of such physical examinations must be determined by the physician in accordance with specific requirements.

In the interest of uniformity, physical examination forms are recommended. Personal records of this character are confidential and should be kept in the custody of the medical department. Access to these records should be granted only on request or consent of the examinee.

The examining physician should acquaint the examinee with the results of all examinations or take steps to refer all conditions requiring correction to the physician of the worker's choice.

B. *Obstetric and Gynecologic Recommendations.*—At the time of the regular examination and history, special inquiry should be made about the breast and obstetric and pelvic conditions.

From the obstetric and gynecologic point of view, the opportunity is too good to be missed for as thorough an evaluation of the system as possible. For example, a thorough examination may elicit an early but serious lesion of the breast, cervix, uterus or adnexa. Other conditions may be revealed which are less serious but which should be reexamined at regular intervals as a health measure to the employee.

A thorough preemployment evaluation of the pelvic organs will permit better placement of the employee more appropriately, as well as to discover early significant and serious disease or altered physiologic states which are still subject to correction.

Women with relaxation of the pelvic structures or prolapse should be placed in work where the stress and strain of lifting or the prolonged effect of gravity can be entirely avoided.

The pregnant or lactating woman, as well as women affected by sterility or habitual abortion, should be particularly protected against lead, mercury, arsenic, phosphorus, solvents, benzene and homologues, volatile oils, nitrobenzene and explosives, x-rays and radium and other dangerous agents. Any substance or agent which might injure the liver or kidney may precipitate extremely serious complications during pregnancy or in relation to pregnancy and lactation. Women who have had toxemia in previous pregnancies or difficulty with fertility or completing a pregnancy should avoid employment during pregnancy.

MENSTRUATION

Many women have little or no incapacitation during menstruation. Those with mild distress may be benefited by dietary improvement, by the avoidance of unnecessary physical and strenuous activities for a few days prior to the expected period or by the administration of mild sedatives and analgesics, under the direction of the plant physician or the employee's personal physician.

Severe cases of dysmenorrhea may require the attention of the specialist. Dysmenorrhea is a symptom and results from many conditions such as pelvic inflammatory states, endometriosis, pelvic neoplasms, cervical stenosis, maladjustment, hormonal imbalance, migraine and allergic states. Adequate rest facilities at the plant are desirable and a brief rest may cause only a slight interruption in the day's work rather than a loss of several hours. Hot applications to the lower abdomen or back may be helpful. Stimulants as coffee, tea or other hot drinks are sometimes beneficial.

For those who must lose one or two days regularly because of dysmenorrhea, a rearrangement of work schedules so that an extra day could be worked on

3. Outline of Procedure for Physicians in Industry, J. A. M. A. **118:** 895 (March 14) 1942.

one or two weeks prior to the catamenia would be very helpful. In this way the woman would not be penalized because of her menstrual distress.

In a few instances efficiency may be so greatly lowered at the time of the menstrual period that the woman should not work. If flexibility in hours or days of work could be arranged there should be more efficient and better production.

A change in climate or altitude may be associated with an increase in menstrual distress, alteration or abnormalities, as dysmenorrhea, amenorrhea, menorrhagia or metrorrhagia. Likewise positions of responsibility, tension or worry may be associated with altered menstrual action.

On the other hand, menorrhagia or metrorrhagia may be the first symptom of cancer or neoplasm. Thus, careful consideration should be given to all complaints and appropriate investigation made by the employee's physician or obstetrician and gynecologist.

MENOPAUSE

Because of nervous and vasomotor instabilities, increased excitability and increased susceptibility to fatigue, women in the climacteric may need special consideration. Estrogenic therapy or sedatives may be extremely beneficial, particularly when there is disturbing noise, excitement or tension, as well as maladjustment to employment, to associated workers, to supervisors or to environment. The menopausal syndrome is certainly not caused by employment and the treatment is not primarily an industrial problem.

Not uncommonly prolapse or cystocele and rectocele become worse near or after the menopause. Consequently women in the postmenacmic period should be particularly evaluated for placement in industry and urged to profit by periodic examinations.

PREGNANCY

A. *Normal Pregnancy.*—Normal pregnant women need reasonable activity, but when employment is necessary stresses and strains should be eliminated. Continuance of employment is common practice in the first half of pregnancy or perhaps longer, depending on the woman's physical tolerance to the type of work. The pregnant employee must not be overburdened by home duties. Each pregnant employee should have individual consideration by her obstetrician and by the plant physician as to the hours and duration of the employment as well as to type of employment.

As the pregnancy advances beyond the twentieth to twenty-fourth week of gestation the woman becomes progressively more awkward and thus must avoid climbing and walking where delicate balance is involved.

Pregnant women should have a regular shift of employment in order that their lives may be regulated for the greatest amount of rest and regular sleep. If the employment is improper or cannot be physically tolerated, the patient must stop work or be transferred to more suitable activity.

B. *Leave for Pregnancy and Puerperium.*—The pregnant employee should not be employed after the thirty-second week of pregnancy (that is, within six weeks of term). It is believed that the discontinuance of employment in the last trimester would benefit many prospective mothers, if economic circumstances permit.

This committee recommends that each employee inform the proper authority in the industry about her pregnant state within the first trimester (three months), that she obtain a statement from her physician to the effect (1) that her work is not contraindicated and (2) that she may work not longer than a given period of pregnancy. If contraindications to work arise, the employee's physician should notify the employer.

The patient should not return to work until six weeks after delivery and then only when her physician notifies the employer that she may return. If her return to work at six weeks is inadvisable because of her own condition or because her baby actually needs her at home, she should request further extension of time.

C. *Antepartum Care.*—Every gravid woman should seek the advice of her physician or obstetrician in the first trimester of pregnancy. For the best interest of the patient, her own physician or obstetrician and gynecologist should administer all antepartum, obstetric and puerperal care. In case of emergency, of course, additional medical care should be obtained from the nearest available source.

Antepartum care consists of a complete history, physical examination, pelvic examination, pelvic measurement, serologic test for syphilis, hemoglobin test, usual urinalysis and blood pressure recording. Ordinarily, return visits need not be oftener than once every three weeks until the thirty-second week of pregnancy and then every two weeks until the thirty-sixth week, after which weekly visits may be required. A urine specimen must be left at each visit, blood pressure taken and the weight recorded. In the last month or so of pregnancy it is good practice to note the position and size of the fetus.

D. *Complications.*—Unintentional abortion is the most likely obstetric complication in the first trimester of pregnancy and it may have no relationship to the employment. These accidental abortions result perhaps more often from abnormal or diseased ova and not because of work or activity. Excessive vomiting is the second most likely problem in the first trimester.

The last trimester is complicated most often by toxemia of pregnancy, placenta previa or abruptio placentae. All of these obstetric emergencies are incompatible with employment of any kind and need immediate treatment.

The midtrimester is a comparatively safe period but any complication may arise at this time, as well as any other, such as anemia, hyperthyroidism, diabetes, tuberculosis, syphilis, gonorrhea, heart disease, hypertension and nephritis, pyelitis, neoplasms (both benign and malignant) and many other conditions.

Other complications will also alter the program. Genital tract infections may require treatment from every two to seven days. Antisyphilitic treatment should be weekly. The management of medical complications will necessitate a specially devised program. In the event of excessive weight gain or evidence of toxemia, special instructions must be given. These are only some of the conditions that the obstetrician may encounter in the care of his patients.

LACTATION

Unless special facilities are available, it is unsatisfactory or impossible for lactating mothers to work and continue to nurse a baby. If sufficient facilities are arranged, ample time must be allowed for nursing and for the patient to obtain food and fluid. The employer should have a statement from the employee's physician prior to employment of a nursing mother that there is no medical reason contraindicating employment.

CARE OF CHILDREN OF MOTHERS IN INDUSTRY

If mothers are employed, arrangements must be made to provide suitable facilities and properly trained personnel to care for dependent children safely. Such care will depend on the size and age of children and the hours of the mother's employment. Infants will require a different type of attention than older children well along in school. Children attending school will need adequate supervision before and after school hours for the assurance of adequate diet, proper clothing and other protections until the mother can take over the responsibility. Special study of this problem must be undertaken wherever these social problems arise.

CONTROL OF COMMON RESPIRATORY INFECTIONS

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To say that respiratory infections are responsible for more loss of time from industry than any other single group of disorders is only to repeat a well known statement. This subject has been discussed on many occasions, and at the Third Annual Congress on Industrial Health, which was held by this group in 1941, it was the topic of a most enlightened symposium.[1] Such topics as the incidence and economics of acute respiratory infections, the role of the physician in the control of respiratory infections and air conditioning were discussed.

Today I propose to discuss some of the methods which are available for the prevention and control of these infections. While it will be admitted at once that there is no completely effective method for their prevention and control, at least more is known today about certain aspects of the problem than was the case some years ago. In regard to treatment, we are on much safer ground; great strides have been made within recent years. I shall confine my remarks to the common cold, epidemic influenza and pneumonia.

THE COMMON COLD

It is now agreed that the common cold is caused by a filtrable virus and that it is the most frequent of all respiratory infections. It is a widespread infection and occurs throughout the world. Epidemiologic studies disclose that the frequency of colds is between two and three per person each year. It has been demonstrated by Dochez and his associates[2] as well as others[3] that the virus of this disease promotes and furthers infection of the respiratory organs by pathogenic organisms such as the pneumococcus, hemolytic streptococcus, staphylococcus and influenza bacillus. It also facilitates the distribution of these bacteria in the community and establishes a background for the occurrence of severe outbreaks of respiratory diseases.

Before saying anything about the prevention of colds, I will cite a few pertinent facts concerning their pathogenesis. The incidence of colds in the United States varies throughout the year and the morbidity rate is cyclic. There are three main peaks of incidence each year: the first in January and February, the second in April and May, and the third in September and October. The epidemic occurring in the spring tends to be the mildest, while that occurring in January and February is the most serious as measured by absence from work and severe complications. Infection is frequent in families, in schools, in industries and where overcrowding is common.

The common cold is highly contagious and the incubation period is short, varying between twenty-four and thirty-six hours. The infected individual can transmit the infection to others only during the early stages of the disease; that is, during the first day or two after the onset of infection. The most infectious period is the first day, and it is known that a patient may actually infect others from four to six hours prior to the development of symptoms.

Carriers of the virus of the common cold are thought to be infrequent, but on this point there is very little precise information. The opinion prevails that carriers are encountered only rarely. This is a matter which needs more investigation.

Once colds become prevalent in any community, many susceptible people who are exposed to an infected person come down with the disease. The degree of susceptibility and resistance varies from one individual to another and from year to year. This is brought out in epidemiologic studies in families and in schools. Resistance seems to increase with age, since there are fewer colds in the elderly than in the young.

A certain degree of immunity, as judged by resistance to reinfection, develops as a result of a cold, but it is of short duration. In the experimental studies of Dochez and his associates[4] it was found that resistance lasted about a month in the chimpanzee. In man, it was estimated by Paul and Freese[5] to be not less than twenty-three days, with an average of about seven weeks.

It seems clear, then, that the common cold is due to a filtrable virus and that a part of its action is to promote secondary bacterial infection of the respiratory organs. It is cyclic in its morbidity and varies in its seriousness, depending on seasonal factors and the frequency and incidence of secondary invaders. It is highly contagious and, while one attack confers increased resistance to reinfection, this period is of short duration.

One of the puzzling features about the common cold in temperate and tropical zones is its cyclic morbidity. We are almost wholly ignorant of the factors that promote the dissemination of a virus in any community and cause outbreaks of the disease. It is well established that colds are contagious and are spread by contact infection and probably by the air, but it is completely mysterious why there should be sudden outbreaks of the disease. It has been postulated that

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From the Evans Memorial, Massachusetts Memorial Hospitals, and the Department of Medicine, Boston University School of Medicine.

1. Piersol, G. M.: Role of the Physician in Industry in the Control of Acute Respiratory Diseases, J. A. M. A. **116**: 1339 (March 29) 1941. Lanza, A. J.: Incidence and Costs of Acute Respiratory Disease in Industry, ibid., p. 1342. McCord, C. P.: Diseases of the Respiratory Tract and Air Conditioning, ibid., p. 1360.

2. Dochez, A. R.: Limited Consideration of Certain Aspects of Acute Infection of Respiratory Tract, Medicine **12**: 245 (Sept.) 1933. Shibley, G. S.; Hanger, F. M., and Dochez, A. R.: Studies in the Common Cold: I. Observations of the Normal Bacterial Flora of Nose and Throat with Variations Occurring During Colds, J. Exper. Med. **43**: 415 (March) 1926. Dochez, A. R.; Mills, K. C., and Kneeland, Yale, Jr.: Variation of H. Influenzae During Acute Respiratory Infection in the Chimpanzee, Proc. Soc. Exper. Biol. & Med. **30**: 314 (Dec.) 1932.

3. Bloomfield, A. L.: The Significance of the Bacteria Found in the Throats of Healthy People, Bull. Johns Hopkins Hosp. **32**: 33 (Feb.), 121 (April) 1921.

4. Dochez, A. R.; Shibley, G. S., and Mills, K. C.: A Study of Acute Infection of the Respiratory Tract in the Ape, Proc. Soc. Exper. Biol. & Med. **26**: 562 (April) 1929; Studies in the Common Cold: IV. Experimental Transmission of the Common Cold to Anthropoid Apes and Human Beings by Means of a Filtrable Agent, J. Exper. Med. **52**: 701 (Nov.) 1930.

5. Paul, J. H., and Freese, H. L.: An Epidemiological and Bacteriological Study of the "Common Cold" in an Isolated Arctic Community (Spitsbergen), Am. J. Hyg. **17**: 517 (May) 1933.

sudden changes in temperature and excessive chilling or wetting of the skin promote conditions in the respiratory passages that permit the virus to invade and then spread through the community. There seems to be little doubt that these environmental factors are of importance, but their precise role remains unclear. The studies of Paul and Freese,[5] carried out in Spitsbergen, and those of Paul [5] on the nonmagnetic ship *Carnegie* shed some light on this problem. In Spitsbergen, which is an extremely isolated community in winter, it was found that an unfavorable environmental factor, such as a sudden drop in atmospheric temperature, was not necessary for the development of an epidemic of colds. It was noted, however, that the arrival of the first boat of the shipping season was usually followed by an epidemic involving the whole community in a short time. This suggests that the introduction of the virus from outside is more important than the climate. Also it was noted by Paul and Freese that trappers who fell through the ice did not develop colds during the winter and spring but did so only if such an accident occurred after the men had been to town in the summer and fall. Such observations suggested that sudden chilling of the body may bring on an attack in a person who has had a recent infection or a recent contact, but only if such a condition accompanied the chilling. That chilling may predispose to colds in isolated groups, however, would seem to receive some support from the following observations of Paul: Outbreaks of colds were noted on the *Carnegie* when the ship entered a cold current from warmer waters even though it had been out of port for days or weeks. This suggests that exposure to cold may in some way activate the virus in a group after it has failed to produce infection for many days or weeks preceding the outbreak.

It seems plain that a more careful definition of the host and environmental factors which favor the spread and invasion of the virus of the common cold is necessary before the spread of this infection can be effectively controlled.

Prevention.—Methods of preventing colds have been directed along several lines. It can be said at once that none of them are effective. Since it is as yet impossible to prevent the spread of the virus in the community, attempts have been made to increase the resistance of the host. Within recent years vaccines, vitamins and "hardening processes" have been investigated. These deserve individual comment.

Cold Vaccines.—In attempting to reduce the number of colds in susceptible persons, vaccines containing a wide variety of micro-organisms commonly found in the respiratory tract have been used. Since the common cold is due to a filtrable virus and the organisms included in the vaccines are now believed to be of secondary importance, it is not surprising that these vaccines, whether given by mouth or by injection, have been a great disappointment. In spite of the many supporters of this method of prophylaxis, it is generally agreed that the incidence of colds is no less following their use than in groups of nonvaccinated controls, and there is good evidence that these vaccines may produce little or no protection against diseases of the upper respiratory passages.[6]

Since so-called cold vaccines are still widely used, it is well to review the evidence on which the foregoing statements are based. To Diehl, Baker and Cowan [7] belongs the credit for clarifying the position of cold vaccines. In two reports, one appearing in 1938 [7] and the other in 1940,[8] the following results were recorded: In 1938 it was found that in a group receiving a polyvalent vaccine by mouth the incidence of colds was the same in the vaccinated as in the control group, and the same was true when Rosenow's streptococcus vaccine was used. In a third group receiving vaccine subcutaneously there were 25 per cent fewer colds per person than in the control group. This difference was noted during both years of the study and was considered statistically significant. Practically, however, these authors expressed the opinion that this reduction of 25 per cent in the average number of colds in the group was not sufficiently great to justify the time and expense involved in carrying out the program. In the second report, appearing in 1940, it was concluded that in a group of cold susceptible students at the University of Minnesota there was no evidence that heat killed vaccine was of any value in preventing the common cold.

As the virus of the common cold promotes the growth of micro-organisms in the respiratory passages, it might be hoped that vaccines made from these organisms would reduce the number of complications. Experiments designed to shed light on this question have been carried out by Dochez and his associates [6] and by Diehl, Baker and Cowan.[7] The results have not been very encouraging. The former investigators studied a group of 20 infants in an institution and gave vaccine at weekly intervals over a period of months. Nine injections were given in the autumn and a similar number in February and March. Another group of infants of the same age and living under the same conditions were observed as controls. The results of this carefully controlled study were of great interest. There was no reduction in the number of simple colds or of respiratory infections associated with fever in the vaccinated when compared with the nonvaccinated. There was, however, an apparent reduction in the severity of the infections as judged by the duration of the fever, which was shorter by 40 per cent in the vaccinated than in the nonvaccinated. There were 5 cases of pneumonia among the nonvaccinated group and 1 case in the vaccinated group. Dochez and his co-workers concluded that the protection against febrile respiratory complications of a cold was incomplete and that the technic of carrying out such immunization so time consuming and burdensome that this method did not seem promising for general use.

Diehl, Baker and Cowan [7] were unable to find any difference in the incidence of complications in the vaccinated and the nonvaccinated. The slight difference in the two groups may have been due to the difference in ages and in environment. One group lived in an institution; the other was composed of students in a university.

On the whole, then, one can say without fear of contradiction that the results obtained from cold vaccines have been disappointing. The vaccines have failed to prevent colds, and they have failed to lessen the number of complications except when given repeatedly over a long period of time.

6. Dochez, A. R.; Mills, K. C., and Kneeland, Yale, Jr.: Disease of the Upper Respiratory Tract: Problems Connected with the Etiology and Prophylaxis, J. A. M. A. **101**: 1441 (Nov. 4) 1933.

7. Diehl, H. S.; Baker, A. B., and Cowan, D. W.: Cold Vaccines: An Evaluation Based on a Controlled Study, J. A. M. A. **111**: 1168 (Sept. 24) 1938.

8. Diehl, H. S.; Baker, A. B., and Cowan, D. W.: Cold Vaccines: A Further Evaluation, J. A. M. A. **115**: 593 (Aug. 24) 1940.

Vitamins.—Deficiency states often predispose to infections, but the supplying of extra vitamins and other food elements to the person who shows no signs of deficiency disease does not protect him against respiratory infections, including colds. Carefully controlled studies have been made recently by Cowan, Diehl and Baker [9] and by Kuttner.[10] The evidence is good that large doses of vitamins A, B_1, B_2, C and D and nicotinic acid, or vitamin C alone, have no significant effect on either the number or severity of upper respiratory infections when exhibited to young adults who are on a reasonably adequate diet. Besides these observations, Sutliff, Place and Segool [11] were able to show that large doses of vitamins A and D failed to prevent complications in established hemolytic streptococcus infections of the throat. Experiments such as those carried out by the Minnesota group [9] are of the highest importance, since here was a group of investigators sincerely interested in methods of preventing and treating colds, who have devoted a number of years of study to this most important problem. They understand the significance of a controlled experiment. A careful study of their data leaves no doubt in the minds of the most critical observer that vitamin therapy in the group studied by them was of no value as far as either the number or the severity of colds was concerned. There is no reason to believe that their experience is unique.

Hardening Processes.—A number of procedures have been recommended from time to time which have as their objective the conditioning of the body to sudden changes in external temperatures of the skin, such as cold shower baths every morning and exercise outdoors followed by hot and cold shower baths. Controlled experiments on this subject have been carried out by Gafafer,[12] who was unable to show any lower incidence of colds in people who followed these practices when compared with a group who did not.

To sum up, it can be stated that vaccines containing the ordinary organisms found in the nose and throat are of no practical value in the prevention of colds. There is no conclusive evidence that they even shorten the course of a cold or prevent the development of secondary infections. It is also true that vitamins fail to prevent colds, at least in a group of cold susceptible people. To date, all other measures have failed to influence the frequency of colds, and we are forced to the unhappy conclusion that at present there are no effective methods available for the prevention of the common cold. Personal hygienic measures and the avoidance of excessive chilling and sudden changes in temperature, especially at a time of year when colds are prevalent, may aid in reducing the total number of colds in some individuals. Avoidance of exposure to colds is important but not always practicable. Every effort should be made to practice hygienic measures, such as washing the hands before meals and avoidance of direct contact with persons with colds. Once colds have developed, relief can be obtained by rest, from codeine and papaverine, and through symptomatic treatment. Undue risks should not be taken, since colds are often followed by pneumonia and other serious respiratory illness.

Continued study of the factors influencing the development and spread of colds is needed, such as a search for adequate and effective chemotherapeutic agents.

9. Cowan, D. W.; Diehl, H. S., and Baker, A. V.: Vitamins for the Prevention of Colds, J. A. M. A. **120**: 1268 (Dec. 19) 1942.

10. Kuttner, A. G.: The Effect of Large Doses of Vitamins A, B, C and D on the Incidence of Upper Respiratory Infections in a Group of Rheumatic Children, J. Clin. Investigation **19**: 809 (Nov.) 1940.

11. Sutliff, W. D.; Place, E. H., and Segool, S. H.: Cod Liver Oil Concentrate (Concentrated Vitamins A and D): Ineffectiveness of Large Doses in the Prophylaxis of Otitis Media Complicating Scarlet Fever, J. A. M. A. **100**: 725 (March 11) 1933.

12. Gafafer, W. M.: Hardening Processes and Upper Respiratory Disease (Common Cold), Am. J. Hyg. **16**: 233 (July) 1932.

INFLUENZA

Terminology.—Since it has been demonstrated repeatedly that the clinical picture recognized as influenza is not a single etiologic entity, it has been suggested by a group of prominent students of the problem [13] that a more precise nomenclature be used. They suggest that influenza be identified according to the virus which is isolated from the patient by such terms as "influenza A" and "influenza B." When a disease occurs in which the clinical features are like those of influenza but it is impossible to isolate a specific virus, it is suggested that the name "clinical influenza" be used.

Clinical influenza occurs as a sporadic, epidemic or pandemic infection. The sporadic and epidemic forms which have occurred in this country and elsewhere within the last few years are due in many instances to a filtrable virus designated as influenza type A and type B respectively. Whether the pandemic disease which occurred in 1918 was due to the same virus is not known. There seems little reason to doubt, however, that it was due to a virus infection. Of all the epidemic respiratory infections, influenza is perhaps the most important, since it can virtually paralyze the activity of civilian and military units. It not only causes great loss of time from work but, since it predisposes its victims to pneumonia, it is responsible for many deaths. In the United States alone in 1918 the attack rate varied from 150 to 280 per thousand, and the total number of deaths reached 500,000. It is no wonder, then, that this pandemic is remembered as one of the worst calamities affecting any nation.

Stimulated by this experience, a number of agencies, among them the Influenza-Pneumonia Commission of the Metropolitan Life Insurance Company, the International Health Board of the Rockefeller Foundation, the Chemical Foundation, the Commonwealth Fund and the National Institute of Health, and a number of scientists working in our leading universities and research institutes began an intensive study of the cause of influenza together with an investigation of methods of prevention and control. Within recent years, great advances have been made. We now know that some forms of influenza are caused by a filtrable virus which can be isolated and used as a vaccine. We also know that there are available both antipneumococcus antiserum and sulfonamide drugs for the treatment of pneumonia, which is so often a complication of influenza. While the sulfonamides have no demonstrable effect on the influenzal infection, they are powerful agents in the treatment of pneumonia and there is some evidence that they may aid in its prevention.

In an attempt to prevent influenza, three lines of investigation have been prosecuted: the use of vaccines, the control of air borne infection by means of ultraviolet irradiation of air and the use of propylene glycol vapor, and the use of immune serum.

Vaccines.—As soon as a virus was isolated from cases of influenza, attempts were made to develop a vaccine which would produce protection against infection. It was soon found that neutralizing and protective

13. Horsfall, F. L., Jr.; Lennette, E. H., and Richard, E. R.: The Nomenclature of Influenza, Lancet **2**: 413 (Oct. 5) 1940.

antibodies could be produced in animals vaccinated with the virus. A wide variety of vaccines have been used in man to stimulate antibodies and protect patients against attacks of influenza.[14] Without attempting to review in detail the literature on this subject, I can make the following statements: Vaccines made of influenza virus call forth an antibody response in the recipients, but they do not completely protect against attacks of influenza. The evidence is good that the incidence of the disease is reduced in some groups and the duration of the disease is shortened. Stokes and Henle[15] have pointed out that, the higher the titer of antibodies in the blood, the lower the incidence of influenza. It would appear that the presence of antibodies in the circulating blood aids greatly in the protection against attacks of influenza, but from many studies it seems evident that there are often other factors aside from the antibody titer in the circulating blood which are important in preventing infections. For example, Francis[16] has found that nasal secretions from some human subjects contain material which neutralizes the influenza virus. Such an observation suggests that local as well as general factors are important in the resistance of individuals to the invasion of the influenza virus. The studies which have been carried out so far with vaccines give considerable promise and are a real step in advance.

Control of Air Borne Infection.—Aside from increasing individual resistance to infection, attempts have been made to prevent the spread of the influenza virus and other infective agents by means of ultraviolet irradiation of air and propylene glycol vapor. It was first demonstrated by Robertson and his associates[17] that the vapor of propylene glycol, even in a dilution of 1:50,000,000, was effective in destroying air borne bacteria and the human influenza virus A, as demonstrated by plating and animal tests. Harris and Stokes[18] and Stokes and Henle[15] have recently reported their results with the effect of this vapor on the incidence of respiratory infections in a convalescent home for children and in the prevention of air borne infection of mice by influenza A virus. These preliminary observations leave no doubt in any one's mind that this vapor is an effective means of sterilizing or reducing the bacterial counts in the air of hospital wards. They are also indicative of the great potential value of this method in the prevention of cross infection, especially when persons live in close contact with others indoors. When the effect of ultraviolet irradiation was compared with that of propylene glycol vapor it was demonstrated that they were almost equally effective in the prevention of air borne infection of mice by influenza A virus. These experiments suggest that both ultraviolet radiation and propylene glycol vapor spray are agents which deserve extended trial in the prevention of the spread of respiratory infections.

Immune Serum.—The use of immune serum locally in the nasal passages has also been explored. Stokes and Henle[15] have reported encouraging preliminary results with this method in experimental animals which indicate that it deserves a trial in man.

It can be seen, then, that intensive investigations are being carried forward at the present time which have as their objective the prevention of influenza. The results which have been obtained so far are extremely encouraging, and there are good reasons for believing that further advances will be forthcoming in the near future.

PNEUMOCOCCIC PNEUMONIA

Great strides have been made in the treatment of pneumococcic pneumonia, but very little has been accomplished in its prevention. It is now acknowledged that the death rate from pneumonia has decreased considerably since the introduction of sulfapyridine in 1937. This decline has occurred in spite of the fact that there has been no decrease in the incidence of the disease. Concurrent with a reduction in the death rate there has occurred as a result of modern treatment a decrease in the total number of days of illness. For example, Ungerleider and Gubner[19] of the Equitable Life Assurance Society of the United States, in commenting on the economic aspects of pneumonia with reference to the prevalence and duration of illness in the years before and since the development of the sulfonamides, have pointed out the following facts: When the incidence of pneumonia in the three years preceding the use of the sulfonamides was compared with its incidence in 1939, 1940 and 1941, it was clear that there was no decrease; indeed, there appeared to have been an increase. Secondly, the duration of illness has been greatly reduced; that is to say, the average period away from work in 1941 was 35 days, compared with 45 days in 1935. The modal or most frequent duration of illness in 1941 was 27 days, compared with 38 days in 1935. The experience of others is in agreement with these findings.

There seems to be no doubt, then, that with modern methods of treatment the total number of days lost from work by persons who develop pneumonia can be greatly reduced. In the aggregate this results in great economic savings to industries, employees and insurance companies.

Cause of Death.—We may now turn our attention to the question of the cause of death in patients with pneumonia, since it is only by a knowledge of these factors that improvement can be made possible. It is well known and widely recognized that the prognosis in pneumonia depends on the summation of many factors, including age, sex, season of year, occupation, bacteremia, number of lobes involved, type of pneumococcus, complications, pregnancy, debilitating diseases and the time and type of treatment. In order

14. Hirst, G. K.; Richard, E. R.; Whitman, Loring, and Horsfall, F. L., Jr.: Antibody Response of Human Beings Following Vaccination with Influenza Viruses, J. Exper. Med. **75:** 495 (May 1) 1942. Martin, W. P., and Eaton, M. D.: Experiments on Immunization of Human Beings Against Influenza A, Proc. Soc. Exper. Biol. & Med. **47:** 405 (June) 1941. Dalldorf, Gilbert; Whitney, Elinor, and Ruskin, Arthur: A Controlled Clinical Test of Influenza A Vaccine, J. A. M. A. **116:** 2574 (June 7) 1941. Horsfall, F. L., Jr., and Lennette, E. H.: A Complex Vaccine Effective Against Different Strains of Influenza Virus, Science **91:** 492 (May 24) 1940; The Synergism of Human Influenza and Canine Distemper Viruses in Ferrets, J. Exper. Med. **72:** 247 (Sept. 1) 1940. Eaton, M. D.; Martin, W. P., and others: Immunization with Inactive Virus of Influenza B: Comparison of Antibody Response with That Produced by Infection, Pub. Health Rep. **57:** 445 (March 27) 1942. Horsfall, F. L., Jr.; Lennette, E. H., and Richard, E. R.: A Complex Vaccine Against Influenza A Virus: Quantitative Analysis of the Antibody Response Produced in Man, J. Exper. Med. **73:** 335 (March) 1941. Francis, Thomas, Jr.: The Immunology of Epidemic Influenza, Am. J. Hyg. **28:** 63 (July) 1938.

15. Stokes, Joseph, Jr., and Henle, Werner: Studies on Methods of Prevention of Epidemic Influenza, J. A. M. A. **120:** 16 (Sept. 5) 1942.

16. Francis, Thomas, Jr.: The Inactivation of Epidemic Influenza Virus by Nasal Secretions of Human Individuals, Science **91:** 198 (Feb. 23) 1940.

17. Robertson, O. H.; Bigg, Edward; Miller, B. F., and Baker, Zelma: Sterilization of Air by Certain Glycols Employed as Aerosols, Science **93:** 213 (Feb. 28) 1941. Robertson, O. H.; Bigg, Edward; Puck, T. T., and Miller, B. F.: The Bactericidal Action of Propylene Glycol Vapor on Micro-Organisms Suspended in Air: I. J. Exper. Med. **75:** 593 (June) 1942.

18. Harris, T. N., and Stokes, Joseph, Jr.: The Effect of Propylene Glycol Vapor on the Incidence of Respiratory Infections in a Convalescent Home for Children: Preliminary Observations, Am. J. M. Sc. **204:** 430 (Sept.) 1942.

19. Ungerleider, H. E., and Gubner, R. S.: Economic Aspects of Pneumonia: Prevalence and Duration of Illness in Presulfonamide and Postsulfonamide Years, personal communication to the author.

to gather more information concerning the factors responsible for death among a group of industrial policyholders, a study along these lines was made by the Metropolitan Life Insurance Company and published in 1941.[20] It was found that the age of the patient, delay in calling a doctor, premature discontinuance of chemotherapy and complicating diseases were vital factors in influencing the death rate. This being the case, it would seem necessary to stress to the patient as well as to the physician the importance of early and thorough treatment. In this way the death rate may be reduced still further.

Prevention.—What can be done about the prevention of pneumonia? It has already been stated that very little has been accomplished in this direction, and the disease continues to remain a major factor in loss to industry through illness. In any discussion of the prevention of a disease, it is well to ask how it is acquired and what factors predispose to its development. While the factors of susceptibility to pneumonia are not all clearly understood, a number of advances have been made recently in the epidemiology of pneumococcic infections. The reviews of Finland[21] are recommended for reading and study. In these reviews it is stated that both carriers and cases of pneumonia serve as foci for the spread of the disease, carriers being more important than cases. Finland also asserts that the occurrence of pneumococcic infection is dependent on the individual's susceptibility to the particular strain of pneumococcus with which he comes in contact. While the aspects of this underlying susceptibility are not all understood, it is recognized that the following features are important: excessive fatigue from overwork and inadequate rest; excessive chilling following exposure to cold or wet; sudden chilling when overheated; the presence of other infections such as colds, influenza, bronchitis and acute or chronic alcoholism. To these, of course, should be added the extent and intimacy of contacts with cases or carriers. The spread of pneumococci is greatest within families, in barracks or in open dormitories where the chance for intimate and repeated contacts is possible.

Recommendations for Control.—What specific recommendations can be made for the control of the spread of pneumonia and pneumococcic infections in general? A few of the chief points may be enumerated:

1. Education of the medical profession and public concerning the dangers of the spread of pneumonia by contact with cases of pneumococcic infection in the home or elsewhere.
2. The isolation of all active cases.
3. The adequate medical care of colds and bronchitis.
4. The destruction of all discharges from the nose and throat.
5. The early recognition, reporting and isolation of the infective agent.
6. The prompt and effective use of chemotherapeutic agents.
7. The avoidance of overcrowding.

Predisposing factors leading to the spread of pneumonia in industries must be studied carefully with an attempt to eliminate each one as far as possible.

20. Some Current Results in Pneumonia Treatment, Statistical Bulletin Metropolitan Life Insurance Company **22**: 1 (Oct.) 1941.

21. Finland, Maxwell: Recent Advances in the Epidemiology of Pneumococcal Infections, Medicine **21**: 307 (Sept.) 1942; The Spread of Pneumococcal and Streptococcal Infections in Hospital Wards and in Families, Pub. 17, Am. A. for the Advancement of Science, p. 212.

ATYPICAL BRONCHOPNEUMONIA OF UNKNOWN ETIOLOGY

In conclusion, something should be said about a group of respiratory infections which has attracted considerable attention within the past few years. These conditions have been described under a variety of names such as virus pneumonia, atypical bronchopneumonia of unknown etiology and acute pneumonitis. It is plain that they do not represent a single etiologic group, since several different viruses have been isolated from clinically identical cases. In the vast majority of instances, however, no specific agent has been isolated.

The prevailing type is acute in onset, with fever, prostration and cough. It is highly contagious, and the incubation period lasts from ten to fourteen days or longer. The course is extremely variable, but it tends to be self limited, lasting from ten days to two weeks. Complications are few and the outcome is usually favorable. The course of the disease is not altered by chemotherapy.

Since the cause of this disease is unknown, its prevention is difficult. However, the same general measures should be taken in an attempt to control it as are recommended for the control of other types of pneumonia.

THE OLDER WORKER

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While it is true that modern war, the organized killing of our fellow men and wholesale destruction of the products of human toil, can be waged most efficiently by men between the ages of 18 and 35, the industrial needs of this war have already demonstrated anew several important facts about the older industrial worker, facts well known but forgotten or ignored in the plethora of peacetime manpower and in the fog of a social philosophy according to which a life of leisure is heaven and society must feed, clothe and house all idle chicks whether or not these chicks can scratch. These facts are:

1. The physiologic age of the worker is not synonymous with his chronologic age, owing to the individual variables in heredity, mode of living, accidents and sequelae of disease.
2. While most workers past 50 or 60 years of age have somewhat less physical strength and physical endurance as well as some impairment of hearing and vision, this may be compensated for in many forms of labor by the greater skill and experience and the decrease in youthful dissipation.
3. By keeping in idleness older workers who can still perform useful labor, we are not only wasting valuable human resources but we are contributing to biologic parasitism in and degeneration of human society. For man is no exception to the biologic law that existence without effort, without struggle, impairs the species.
4. By forced idleness of the increasing army of older workers in our midst we are forging a dangerously weak link in that large fraction of society whose experience, wisdom and relative unselfishness could guide those with less experience and wisdom. For, when a person is shunted out of the dynamic current of life, courage and incentive are at low tide.

Read before the Fifth Annual Congress on Industrial Health, Chicago, Jan. 12, 1943.

5. One element in the philosophy of organized or union labor, namely, equal hourly wage for all workers in each special trade, must share part of the blame for the past practice of discarding the older worker by the management of industry. Even though all workers are not equal in skill and efficiency, and in spite of the fact that the practice of organized labor tends to gear the rate of all workers to the slowest in the group, there comes a day when the older worker in many given tasks cannot keep pace even with the slowest and least efficient younger comrades. Economic management calls for dismissal of the older worker at that point. If wage in proportion to performance was recognized as a fundamental principle, the older worker could taper off in industry, just as the young apprentice works himself gradually up in skill, performance and remuneration. From my knowledge of human nature, another destructive effect on morale, efficiency and joy of living results from the practice of gearing the most efficient to the rate of performance of the least efficient. On that plan the ablest worker will seldom, if ever, experience the joy of performance according to his superior ability or the growth in skill commensurate with his ability. This not only is a waste of precious human resources but tends to make lives humdrum that could be enriched by the daily challenge and joy of more and better performance. For the ablest worker to be geared to mediocrity, to do less than his best, is bad psychology for our ablest people and is, so far as I can see, of little or no aid to the less able fellow citizen or to society. I speak not without experience. I was a farm hand and a labor union carpenter before I became a college student, an investigator, and a teacher in the medical sciences.

Under more primitive and biologic conditions of human life, as in life on the farm and in agriculture in general, work and responsibility of children and youth have their normal biologic upward curve, as is the case among all wild animals who have to scratch for their living. Under similar conditions of life, as on the farm, men and women past 50, 60 or 70 years also find their niche of productive work, happy in the knowledge that they still have a part in the stream of life. Biologically, man grows in understanding and physical and mental efficiency from birth up to 25 or 30. Then there is a plateau of efficiency for some twenty years, health being present. Then the reversal of the youth curve sets in, the gradual impairment of the physical, and considerably later even of memory and of mental efficiency. A civilization, a social or an economic system that discards men and women of 50 or 60 as no longer a link in the chain of human labor, as no longer productive physically and mentally, I say such a civilization, such social and economic systems, are thoroughly unbiologic, thoroughly wasteful and thoroughly cruel and inhuman to our fellow men at the later decades of life. A man or a woman in modern industry, trained to do, and for twenty or thirty years having done only one such small thing as fitting a screw on a certain size nut for eight hours a day, may not be able to perform that mechanical feat at the standard rate when past 50 or 60. But it is a terrible reflection on our education if that man and woman past 50 or 60 cannot do something else of value to society and to themselves. And it is certainly no indication of intelligent planning on the part of such society if opportunities for such work are not afforded. In fact, tasks for which men and women past 50, 60 and 70 are thoroughly capable lie all around us like mountains, but we do not see them. Social security for our aging population is all right in principle, but it should take the form of labor for which these people are capable and not the form of pay for doing nothing.

In industrial tasks calling for maximum performance of the entire machinery of the human body, the older worker by and large will be increasingly handicapped by the sequelae of accidents and disease, despite all efforts of accident prevention and our growing knowledge and skill in medicine. Apart from and in addition to these factors, what are the inevitable and unavoidable aging changes of man rendering him less fit, if not unfit to labor? When and how speedily do these aging changes come on in the individual? Do these aging changes or impairments constitute a bar to all useful labor? Can industry be organized so as to make fair and adequate use of men and women handicapped by age alone? Is there no alternative to the relegation of men and women past 50, 60 or 70 years of age to the scrap heap of idleness and the dole, to parasitism and charity? All age changes come on gradually. Those body changes with age involving the strength and endurance of the skeletal neuromuscular mechanism and the senses of hearing and vision are probably the most significant for the industrial worker, but it must also be kept in mind that these systems are all dependent on a good diet, a good intestine, good blood, good kidneys and good lungs. The human body is a machine. Any weak link tends to impair all the other links. Some age impairments appear as early as the third decade. If all industrial labor was physically as exacting as prize fighting, marathon running or professional football, nearly all workers would be retired at 35 years of age.

Progressive age changes, not as yet shown to be due to specific diseases are:

(*a*) Gradual tissue desiccation.

(*b*) Gradual retardation of cell division, capacity of cell growth and tissue repair.

(*c*) Gradual retardation in the rate of tissue oxidation (lowering of the basal metabolic rate).

(*d*) Cellular atrophy, degeneration, increased cell pigmentation and fatty infiltration.

(*e*) Gradual decrease in tissue elasticity and degenerative changes in the elastic connective tissue.

(*f*) Decreased speed, strength and endurance of skeletal neuromuscular reactions.

(*g*) Decreased strength of skeletal muscle.

(*h*) Progressive degeneration and atrophy of the nervous system, impaired vision, hearing, attention, memory and mental endurance.

THE NEUROSKELETAL SYSTEM

The gradual slowing and weakening of reflexes and general body activity in the aging mammal is so obvious as to be well known both to physicians and to laymen. Decreased functional capacity both in the nervous tissues and in the skeletal muscular tissue seems to be at the base of this gradual decline. Actual atrophy of the Purkinje cells of the cerebellum has been described in the aged and, since this part of the nervous system is seriously concerned with skeletal muscle tone and coordination of skeletal muscle contractions, it may be a factor in the growing muscular weakness of old people, irrespective of the cause or causes of this atrophy in the cerebellum.

As regards the cerebrum of aged people, general atrophy has been described especially in the frontal and occipital lobes, and actual disappearance of cells in some of the layers of the cerebral cortex, as well as pigmentation and fat infiltration of the nerve cells and actual

hyperplasia of the neuroglia cells. Similar degenerative changes with age occur in the spinal cord, that is, atrophic pigmentation, actual loss of cells and degeneration of the axons of many ventral horn cells. In the case of the brain, thickening of the meninges occurs with advancing age, but it is difficult to see how this in any way should interfere with nervous action or nervous function.

Recent investigations appear to demonstrate a very gradual but significant decrease in the myelinated fibers of the dorsal nerve roots with advancing age. This must be secondary to an atrophy and death of spinal ganglion cells and is probably the basis of the reduction in cutaneous and protopathic sensibility of aged people. The sense of pain seems to be the least affected by aging. In view of such evidence of atrophic and degenerative changes in the central and peripheral nervous system irrespective of the primary cause or causes of these changes, it is not surprising that neuromuscular weakness, slowing of the reaction time and decreased capacity to learn are part and parcel of the physiology of aging. The speed of learning seems indeed to decrease gradually in man from the fourth decade on. But this handicap of the aged is on the whole more than made up for in some individuals by their greater speed of correlation and evaluation of a new experience.

There is very little evidence of aging changes in smooth muscle, which seems on the whole to retain its normal histologic character into advanced old age. The diminished tone in smooth muscle, as may be seen in the blood vessels in the intestine and the smooth muscles of the skin and other structures in old people, may be secondary to the impairment in the nervous system that has been indicated. But not all the impairment of body motility with age can be ascribed to degenerative changes in the nervous system itself because the striated skeletal muscle system shows fatty infiltration and brown atrophy with advancing age. The strength of the biceps at the sixth decade of life is only about 50 per cent of that at the age of 25 to 30. The trunk muscles decline in power somewhat slower. However, the recent investigation by Kubo (1938) reports little evidence of decrease in muscle strength and endurance in people that would ordinarily be called old, that is, people 70 to 90 years of age. This is just another illustration of the individual variations in the chronologic age appearance of the aging processes. There is some increase in connective tissue and elastic fibers in the skeletal muscle of old people and there is clear evidence of desiccation; that is, decrease in intracellular fluid. But in this respect the skeletal muscle of the aged falls in line with all the other tissues of the body.

VISION AND HEARING

Because of the accessibility of the organs themselves and the availability of quantitative tests of function, we have more accurate information regarding the aging changes in the physiology of the eye and the physiology of the ear than is the case with most of the other systems in the human body. In the case of vision there is a gradual decrease in visual acuity (central vision), a gradual narrowing of the visual field, as well as a slowing of the dark adaptation (peripheral vision) and a gradually higher threshold for light stimulation for man past the fourth decade. The narrowing of the visual field is probably due to the actual degeneration of the nerve cells (cones), starting in the periphery of the retina. We are not yet in a position to say whether these visual impairments occur independent of, or are secondary to, impaired retinal circulation. It is equally well known that the incidence of cataract increases with aging, irrespective of whether or not the tendency to cataract formation is hereditary. Arterial sclerosis would undoubtedly accelerate any such hereditary weakness, and so would certain faulty diets and certain endocrine and other metabolic disorders. The gradual decrease of the elasticity of the lens is another well known and accurately measured phenomenon of aging man, with the exception that diminution in lens elasticity actually starts in childhood and practically all lens elasticity is lost before 60 years of age. The lens continues to grow at the periphery (vertex) and thus approaches closer and closer to the cornea with advancing years. At the same time the material at the center of the lens becomes more dense. Both of these factors, and the lens swelling from increased water content, are responsible for the well known phenomenon of so-called second sight of people 60 years of age and beyond. This lens change tends to counteract the presbyopia, or impairment of accommodation in hyperopes, due to the loss of lens elasticity. Other age changes that may contribute to the gradual impairment of vision with age are diminished translucency of the cornea, the arcus senilis and the vitreous humor. It need not be pointed out that the retina, being actually a lobe of the brain, is necessarily as seriously impaired by local, vascular pathologic change as is any other part of the brain. However, because of the accessibility of the retinal vessels to direct inspection we have probably earlier factual information regarding such pathologic change in the retina than we have in most of the other deep organs of the body.

HEARING

From the age of about 20 on there is a gradual loss of acuity to all tones, but the loss of sensitivity is greater to the high tones. This deterioration of hearing is somewhat greater in the male, but the degree of retrogression is not predictable on chronologic age, as some people at 80 have no greater auditory impairment than other normal people at 50. This impairment of auditory acuity is present even when tested by bone conduction. The cause for this decline in auditory acuity appears to be a gradual but distinct atrophy of the nerve cells in the basal coil of the cochlea. But anemia, due to incipient arterial sclerosis, may also be a factor, since in experimental anoxia the perception of the high tones goes out first.

In the light of all these facts, one would expect that intellectual capacity should decline parallel with neuromuscular strength and endurance. According to all existing evidence, this is not the case. This exception is probably due to the significant role of experience, especially in the case of complex intellectual problems.

THE DIET OF THE OLDER WORKER

While we do not know what may be the optimum diet for optimum efficiency for any age, we do know enough to say with certainty that the older worker will keep most fit by eating enough good food to avoid underweight and avoid eating so much food as to become obese. Life insurance statistics show clearly that definite underweight as well as definite obesity shortens the life span. Common experience demonstrates that both impair physical endurance and performance. It is not difficult to understand why ingestion of food to the point of obesity is injurious to people with reduced factors of safety in the matter of insulin, pancreas, sugar and fat metabolism. Such dietary excesses

damage by overwork already impaired mechanisms. But in the absence of diabetes, actual or incipient, why does obesity, maintained for years, initiate or aggravate cardiovascular, renal and other disorders that shorten the life span? While the answer to these questions is being sought by experiments and accurate observation on mice and men, prevention of obesity in all workers past 30 appears to be a prophylactic imperative, a must.

From time to time financially fortunate and humane fellow citizens provide funds for "old peoples' homes." I hope that some financially fortunate, humane and farsighted fellow citizen will soon provide the National Research Council with a fund of $1,000,000 to be used toward learning what is the optimum diet for old people: old workers on the farm, in industry, in business and professions, as well as those in old peoples' homes.

We know that the digestive secretions decline with age. The frequency of achlorhydria rises gradually in the population even past 30. What this means in the way of diet and nutrition of the older worker is not yet known. Dr. Edward L. Tuohy [1] recently published an excellent review of the known and the unknowns in "Feeding the Aged." There can be little doubt that persistent bad food habits will induce increasing impairments with the added years. The lower basal metabolic rate may call for fewer calories (less fats and starches) for men and women past 60 or 70, but the need for proteins, minerals and vitamins does not seem to be correspondingly reduced. Cash in the paltry sum of the price of a single super bomber would go far toward replacing with knowledge our present gaps and guesses as to the optimum diet for the older worker.

It should be quite clear to all informed people that normal aging strikes no man with the suddenness of an acute disease. We are not worth 100 per cent industrially today and worth zero tomorrow on our sixty-fifth or seventieth birthday. We grow old and inefficient just as we grow up and efficient over the years. We have discovered that useful work can be performed by people with disabilities more serious than those of normal aging, such as the blind, the deaf, the mute, people minus a hand, an arm, a leg or both legs. We readily admit that useful work suitable to the gradually aging worker is less readily provided in industry than on the farm. But it can be done, it has been done, it is being done even in industry. Such an experiment by the Dodge Division of the Chrysler Corporation in Detroit is described in some detail in *Forbes' Magazine* for November 1942 by Don Wharton. This experiment seems more significant as it was well under way (1934) before the present war and hence not carried financially by the present billions of federal war appropriations. The ninety-nine workers in the "Old Man's Division" of the Dodge plant average 66 years in age and some of them are past 80. But the fact that all these workers receive the same pay (93 cents an hour) makes me think that the department is not run on a strict economic basis, that the excess costs, if any, are charged against all the workers in that industry or added in the price of the product, a practice not uncommon and possibly justified in the better morale of the older worker. The general formula relating work to remuneration seems simple:

A. The younger worker: Physical strength and endurance growing, but not at adult par; skill and experience growing, but not at adult par = less than adult performance and pay.

B. The adult worker: Strength and endurance at maximum; experience and skill near or at maximum = maximum performance and pay.

C. The older worker: Physical strength and endurance receding, experience and skill at par = generally less than adult performance and therefore less pay.

I never could understand, I do not now understand, how industry as such can practice charity. Monies so devoted must by necessity be deducted from wages, salaries and dividends to stockholders or else the cost added to the cost of the product, in which case the charity is given, to be sure, without their knowledge by the consumers of the industry's product. Some day man may achieve sufficient stoicism to face with equanimity the fact that charity and doles are for the children and the sick, not for the aged, unless incapacitated by age.

If what I so far said squares with facts, reason and wisdom as well as with our conception of justice, we might expect educational institutions to be ahead of industry in the elimination of waste of the older workers. But this is not so. In general there is full salary and duties of college and university men up to 65 or 70 and then abrupt unemployment on assumed total incapacity. Two factors are probably mainly responsible for this waste: (1) the younger generation in a hurry and (2) the older generation so ignorant of biology that it cannot see the justice of reduced pay for reduced capacity and performance. One of our large state universities recently recalled as dean of its graduate school a man now 77 whom the same university retired from that position nearly ten years ago. It is not probable that this university dean is today more capable than he was ten years ago. It seems more probable that this university wasted a valuable human resource for ten years.

According to the U. S. census, the number of people past 65 years of age in our population has increased during the last ninety years from 2.6 per cent to 6.8 per cent. If this trend continues, and I think this is assured by more of science and the better art in medicine, fifty years hence about fifteen out of every hundred people will be over 65 years old. I think we can add that, by and large, this army of older people fifty years hence will be even better qualified for useful work than are the people of the same age today. Thanks to more science and better art in today's medicine, our larger aged army of 1940 is less decrepit than was our smaller army of 65 year olds a hundred years ago. It is sheer waste, bad biology and gross injustice all around to feed, house and clothe this army in idleness. Old age pension is not the answer. The dole is not the answer. The only answer is useful work for pay, plus sickness and accident insurance. When aging has rendered us incapacitated for useful work we are truly sick, and sickness insurance should meet our needs. I think I am discussing important principles, not arguing about names, not fighting windmills. Still it must be admitted that at 68 some people fail to recognize their own delusions. I think that useful work is a privilege and a blessing, not a curse. It is also a biologic and social duty as long as we can carry on. Because the probability of less elastic arteries and less cardiac reserves, not to mention less strength in the skeletal muscles, the worker past 60 should, as a rule, not be put at tasks calling for the physical power that a worker aged 20 to 40 can deliver with safety. Moderation in all things, and a thorough medical check up twice a year will aid the older worker in keeping fit to carry on.

1. Tuohy, E. L.: Feeding the Aged, J. A. M. A. **121**: 42 (Jan. 2) 1943.

There is the prevailing view that quitting useful work before the infirmities of old age and specific disease compel it hastens the age decline and brings on death sooner. It is difficult to check this view by adequate controls. So far as I know, this view is based on conspicuous instances, forgetting the exceptions. But to the extent that idleness decreases the zest of living, and unhappiness and depressing mental states actually impair some of our body machinery, it may be true, especially if the pleasure from good food is still strong, for in that case injurious overeating is likely to become the rule. I dream of a tomorrow when our millions of men and women well past the chronologic three score will say, with Albert J. McCray, aged 71, now running a drill press at a Douglas Aircraft plant, "I'd rather have a job than a pension any time,"[2] for that spirit helps to keep the older worker young and aids in making America stronger.

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PROCESSING TECHNICS IN PHYSICAL EXAMINATION

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The success of the American production system is dependent on many factors, of which two extremely important ones are: (1) progression from one phase of assembly to the next and (2) elimination of repetitive operations. In a tour through a well organized industrial plant one is at once impressed with the fact that, while innumerable dissimilar operations are being done, an atmosphere of order pervades the whole with each step properly placed in sequence and essential to the completion of the finished product. This is necessary for two particular reasons: (1) the need for using available manpower to the best advantage and (2) the fact that waste motion (or material) represents an increased production cost which in a highly competitive market directly affects sales and profits. This is one essential difference between private industry and politically controlled or operated manufacturing units.

Although industrial medical practice has been a separate entity and a recognized specialty for many years, very little has been done until comparatively recently to improve its operating status—to streamline it to eliminate waste motion. During the past four or five years the duties of the plant physician have more than doubled. In many plants the physician has to pass on transfers, all changes of jobs and manufacturing processes which entail hazardous operations or the use of toxic materials, and he finds his time otherwise taken up in conferences and the like—all this in addition to what he used to consider his regular duties—emergency surgery, physical examinations and so on. Without organization he would never get his work done; he would either quit in disgust or suffer a nervous collapse.

Our own medical department was similar to the departments of the majority of industrial plants visited during the past few years. It had started out as a glorified stepchild of the employment office and had gradually expanded through the years to include radiography and other activities but was still only too apparently an overgrown first aid station. When one considers the evolution of industrial medical practice, this is not at all difficult to understand. Originally, first aid was a necessary evil with some retired pensioner in charge. The fact that he had little if any knowledge of medicine or first aid training had no bearing on the matter. Every tool crib had its cigar box containing iodine and assorted bandages, while frequently certain workers acquired considerable renown for their skill in removing foreign bodies from eyes with toothpicks. So the first aid station came into being. Later on, practical nurses and still later graduates were placed in charge under the supervision of some doctor who dropped in occasionally but never took it very seriously. Then came the full time plant physician who was willing enough but who had to prove his worth to management and who found it quite difficult to demonstrate the dollar value of intangibles. But gradually the scope of his activities increased until at the present time the ramifications of the medical department reach into all manufacturing departments and processes. At first there was very little order and less system. Applicants for employment, reporting for physical examination, were conducted past employees being treated for wounds of all sorts, the odor of disinfectants permeated the air, and the impression on the candidate was that this must be a bloody place in which to work. It was always our luck to have a lot of accidents on days when hiring was heavy, so that the people coming in were certain to see us at our best—or worst.

There were other problems also, one being that of department layout. The nurses were constantly walking from one end of the place to the other, so that an eight hour tour of duty resolved itself into a sort of "bunion derby." Patients were received in one room and taken down a long hall to the x-ray room, where they removed such articles of clothing as the nature of the examination required and then had to dress before being taken elsewhere for treatment or further examination. The use of the x-ray room for disrobing and dressing prevented its being used for other purposes, so that it was only about 60 per cent efficient. After taking the picture, the technician had to carry the casette a considerable distance to the darkroom for processing. She then had to take the wet film across a hall to the view box, later returning the film to the darkroom for drying. If the doctor wished to see some one particular film, the technician had to wait until others in course of development were sufficiently processed to permit her to turn the light on or open the darkroom door. These were minor delays, yes, but in the aggregate entirely too much time was wasted, and when production schedules are up and the plants want their help, delay means the loss of a lot of production dollars, the ill will of the foreman and supervisors who want to know why they haven't gotten their men, and criticism of the personnel-medical setup, until tempers get badly frayed and we say things we really shouldn't.

Another problem was that of individual rather than collective examinations. When several men are stripped in one large room they resent the lack of privacy. While curtained booths help somewhat, they do not fully solve the problem. A solid door has a certain psychologic value: even though there may be others on the other side, the closed door insures privacy.

These are only a few of the problems with which we had to contend. Through the years we had given the matter considerable thought, and we recognized that if

2. Time, Dec. 14, 1942.

Read before the Fifth Annual Congress on Industrial Health, Chicago, Jan. 12, 1943.

we were willing to break with tradition our production system had many features which were applicable to our own problems, such as elimination of repetitive motions, standardization of technic and other features which would increase our efficiency.

In planning our layout, the first step was to classify our contacts into one of three main groups:

1. Preemployment physical examinations.
2. Employees who had been off sick reporting back for duty.
3. Employees on company time reporting for treatment, examination or consultation.

Groups 1 and 2, i. e., those undergoing preemployment physical examinations and those returning to work following absence from all causes, should not come in contact with group 3, employees undergoing treatment or examination, nor should those in group 3 come in contact with groups 1 and 2. To accomplish this two waiting rooms would be required, so situated that a man coming from the shop would not get into the applicant's waiting room, which communicated with the employment office and an outside factory entrance, nor should a prospective employee be able to get into the factory proper. This was quite important, for in times past applicants or those off duty would frequently be found wandering through the production departments. The most strict inspection at the factory gates would be futile if this by-pass existed.

It had long been our routine practice to take x-ray films in all cases of injury to bones and joints, no matter how presumably trivial the injury appeared to be. Although this necessitated quite a bit of extra work, experience has shown that it was fully justified. In addition, all applicants for employment, as well as those returning from sick leave, have chest films taken, also a film of bone or joint injury sustained in recent automobile accidents or the like. We felt that it would be better to have one radiographic unit of superior quality with a centrally located processing room than to install two units and divide our activities and records. In order that the x-ray equipment might be equally accessible to the two groups (old and new employees) we decided to locate this room first and arrange the other activities around it. In laying out a medical department one should dismiss any idea of remodeling, as such, lest the completed job be no better than before. The fact that a certain unit, such as the first aid, or a waiting room always had been in this corner or that does not necessarily mean that it was most efficient in that location.

As all our plants are conveniently situated with reference to an excellent general hospital, we have never attempted to keep any patients overnight or perform any surgery in our plant setup, which is essentially a minor dressing station and examination and consultation center. Many years ago Dr. Allen B. Kanavel of Chicago educated us to the fact that tendon suturing and repair of traumatized extremities merited greater care than that afforded by kitchen table technic. By referring our surgical work to the city hospital, our main planning problem was that of examination and consultation, with dressings and treatment playing a secondary role. We therefore broke down the entire procedure of physical examination of applicants into individual steps, which we arranged in sequence. It began with his reception in the applicant's waiting room, where he was given a physical examination card and conducted into the preliminary examination room. Presuming that a complete examination, including photograph, finger prints, chest x-ray and physical inspection takes thirty minutes, if the examining physician interested himself in each step of the procedure he could pass on only some sixteen applicants during an eight hour day. But if he delegates the bulk of these duties to others and confines himself solely to a review of the x-ray film and inspection of the candidate, he can handle from twelve to fifteen per hour, i. e. one hundred and twenty or more per day. Furthermore, a clever nurse can do many of these minor tasks far more quickly and efficiently than the doctor himself. In the matter of drawing blood specimens for serologic examinations we have several nurses who are extremely adroit at hitting veins and draw a hundred or more specimens of blood a day as a matter of course. Our x-ray technician and her assistant are both graduate nurses interested in radiology. To them a hundred or more chest films are a normal day's run, with the last as technically perfect as the first. This is very important, for aside from the diagnostic value of a well taken and properly processed film there is a medicolegal angle; we might have to display some one film in court in the event of a damage suit, and nothing is more embarrassing than to attempt to defend a case by presenting inferior films; besides, it takes no more time and but little more effort to take a good picture than a poor one. For fingerprinting and photography we trained two young women from our office staff.

The functioning of the preliminary examination room is under the supervision of the nurse who draws the bloods. It is her duty to see that things go smoothly; that applicants are admitted promptly, treated politely and passed on to the x-ray department. The average applicant is frequently a bit confused and apprehensive. If he is made to wait any great length of time, is greeted in a brusque manner or is treated roughly, he at once gains an unfavorable impression of the medical department and of the corporation which it represents, for quite frequently the only contacts an employee has with management are his foreman and the doctor. If we start a man off right, we seldom have much trouble with him later.

We first take his photograph for identification purposes, using a 35 mm. camera at 30 inches, $\frac{1}{25}$ second exposure at f/4.5, with one number 2 Photoflood bulb in a reflector. He is seated at the photograph table which was carefully designed for that purpose. His name, Social Security number and the date, together with "Delco Remy, G. M." are arranged on a "bulletin board" which is placed in position before him. The finished film shows these data below the picture of the person himself. All data are carefully checked, particularly the social security number, so that no mistake will be made. Having his picture taken by an attractive young woman makes him feel better, and he is then ready for his finger prints. This done, he is stretched out on a cot and a blood specimen drawn by the nurse before he has time to become alarmed. Further, very few men, or women either, will argue with a woman, which they might and probably would do if a man was to be drawing bloods, so that to date we have had practically no refusals in some 9,000 cases. Occasionally some man faints (no women to date) and for that reason we always have them lie on a cot, for if a man faints and falls to the floor he might injure himself seriously, and even if he does not, a 200 pound man on the floor is somewhat of a problem to the attendants.

Points to consider:

1. Drawing a specimen of blood makes many persons nervous, and they do not finger print or photograph well afterward.

2. To roll up his sleeve, the applicant must remove his coat or sweater. He then has to put the garment back on before being photographed.

3. When he lies down for his blood test he musses his hair and collar and then has to primp a while before having his picture taken, all of which takes time.

We therefore take the picture first and then the finger prints. Finally we draw the blood specimen. When this is done the applicant is conducted to the disrobing booth and does not need to pause to rearrange his hair or put on his sweater or coat. At the door of the disrobing booth the nurse instructs him to strip to the waist and slip on the poncho-like gown which he will find in the booth. The nurse takes him to the booth rather than an ununiformed attendant, as it gives this step a more professional tone, particularly the instructions relative to disrobing. His examination card is placed in a rack on the x-ray room door and a signal given to the x-ray nurse, who goes to the booth and escorts the man across a narrow hall to the x-ray room, where his chest film is taken. An observant person can be of great value at this point. Our technicians, being graduate nurses, make a quick survey of the man's general appearance—rash or other skin disorders, deformities of the thorax and arms, spinal curvature and many other things. She at once informs the examiner by means of our interdepartmental phone system. He comes to the x-ray room and may suggest other films, such as a lateral view of the spine or a film of the hip or other part. The examiner would doubtless pick up these things in the course of his inspection later, but that would necessitate the man returning to the x-ray room, instruction of the technician as to what was desired, and considerable time lost. Our x-ray technicians have seen so many skin cases that they can diagnose secondary syphilis and other undesirable conditions at a glance. The chest film having been taken, the man resumes his gown and is escorted back to his booth by the technician, who directs him to remove the rest of his clothes, lock the booth door from the inside and await the examiner. She then flashes a light which is seen in the examining room, takes the examination card to the examining room rack, returns to the x-ray room and hands the casette containing the exposed film to her assistant. She is now ready for the next one. The assistant immediately starts processing the film in a temperature controlled tank. We use standard Eastman x-ray developer and hypo at from 65 to 69 F. for five minutes developing, five minutes fixing in the hypo. We do not use "refresher" chemicals. After seventy-five, 14 by 17 films or their equivalent are run through, the tanks are drained, cleaned and supplied with fresh solution. Since we take about that number of films daily as a routine, the solutions are changed every day, and if the run is particularly heavy we may pause in the middle of the afternoon to change our solutions. At first thought this might appear to be wasteful, but we do not feel it to be so, for a good film used in evidence can, and in several instances has, saved enough to buy a lot of chemicals.

Within ten minutes from the actual taking of the film, it is ready to be viewed by the examiner. The doctor notes the signal over the dressing booth door, goes to the rack and, taking the examination card left there by the x-ray technician, calls for the man by name, asking him to step out into the main examination room. The man steps out and goes immediately to the scales, where he is weighed and his height noted. The matter of weight is of considerable importance. Most men, particularly light weight ones, list their poundage at more than it really is. A month or so later, particularly if they don't like their job or the shift, they report back, complaining of loss of weight as evidence of an inability to eat, general nervousness and the like. We frequently find that many who think they are losing have actually gained in weight, so that they are not suffering as much as they think they are. This is particularly true of men on the night shifts who want to be transferred to days, or foundry men who want jobs in other departments. We might have had weight and height recorded in the preliminary examination room but felt that it would be better to include it in the course of the physical examination, with the man stripped.

The examiner then takes a short history. We do not rely to any great degree on a history given at time of employment, for the average man in search of a job will often very conveniently forget various items which might be of more than passing interest. If there are any objective signs, such as operative scars or deformities, note is made of them. The blood pressure is then taken. While most younger persons will have a normal pressure or even a hypotension, occasionally we find one with a pronounced hypertension, sufficiently often to justify taking a reading on all. The heart sounds are noted by means of a stethoscope for murmurs, arrhythmia, extrasystole and so on. No effort is made to get breath sounds. The examiner then goes to the grid which separates the two through the wall view boxes and calls through the grid, which is light proof but transmits sound, to the technician in the x-ray processing room and asks for the film whose number was written on the examination card by the technician who took the chest film. All films have a number photographed into the corner as a matter of permanent record. The technician then places that particular film in the view box, closes her side and turns the handle. The examiner can then open his side, the box becomes illuminated and the film is at hand for inspection in the presence of the applicant, who is usually quite interested and joins the examiner in viewing it. If there is any pathologic condition present, this is the proper moment to discuss it with the applicant. It has been our practice to take a flat film of every one and, when any pathologic condition is observed, return the man to the x-ray room for a stereoscopic series of his chest. We do this in all cases, even though there may be sufficient pathologic change present to justify rejection, such as presumably active pulmonary tuberculosis, as we feel that we can learn enough from stereoscopic films of any one particular case to more than compensate us for the expense incurred. By this practice we have built up quite a considerable library of stereoscopic films of about every sort of pulmonary disease from "Wheatena" to carcinoma (of which we have 3 cases of primary carcinoma of the lung).

Presuming that everything is all right so far, we next test the applicant's vision. In times past we were constantly misplacing our reading chart (we test for

close vision only, on the theory that if a man can see to read he can see distant objects sufficiently clearly to satisfy our demands), so we arranged to have our examination cards printed with a type which, when held at 20 inches distance, indicated a 20/20 vision. Therefore, if the man can read the type on the examination card he has a normal reading vision. In the event that he fails with either eye he is then tested by means of a stereoscopic eye testing apparatus which gives his visual factor for each eye and is so designed that it is quite impossible to cheat, even if he was so inclined, which of course he would not be. By means of this machine we can evaluate his vision within one or two minutes and check him for stereopsis, color blindness and other conditions. The examiner then tests his knee jerks, elbows and so on, palpates his abdomen, has him stand up and checks him for hernia, has him walk about a bit to observe his gait and survey him generally, and if nothing else is noted the inspection is over and the applicant returns to his booth to resume his clothing. Items noted are recorded on the examination card, and the applicant is ready to return to the personnel office for assignment to his job, and the examiner calls for another one. In all, this part of the examination took from five to seven minutes, frequently less, sometimes more, particularly in the case of rejections, when the examiner discusses the matter at considerable length with the applicant, explaining just why he cannot be taken on, and if some disease condition is present, tuberculosis and the like, arranges for an appointment with the man's personal physician and otherwise manifests some personal interest in the man's condition. We do not subscribe to the practice of rejecting a man and saying nothing about it—passing the buck to some one else to break the bad news to him.

It will be noted that at no time has the applicant come in contact with the other activities of the department. When he has dressed and walks out of the disrobing booth and through the short hall with which it communicates, he finds himself in the personnel waiting room—there is no other place for him to go. He cannot get out into the shop until he is officially taken there by a guide. Nor, as stated before, can an old employee with a bandaged arm or leg stumble into the examining unit to disturb the new applicants.

The outer door of the examining room opens into the first aid section, so that an employee coming in from the shop can be admitted to the examination room direct without passing through the outer maze. If he is to disrobe, he can enter a booth to do so and later on pass out into the first aid section and thus to his job.

The x-ray room likewise has two doors, one for applicants from the booths and the other opening into a hall adjacent to the first aid section. An employee can thus be admitted to the x-ray room via the first aid section and then wait in a booth located across from the x-ray room while the film is being developed. This film can be viewed in the view box through the wall in the manner described before, or, if it is a follow-up film, it is taken to the battery of view boxes, previous films are gotten out and comparisons are made. As occasionally happens, an employee may have been sufficiently wounded to indicate hospitalization. All such men are removed by ambulance, as we feel that any one sufficiently hurt to justify hospitalization suffers less shock when taken away in an ambulance than would be the case if he was to walk out to a car and be driven over. With this in mind, an entry was arranged through the back end of the medical department, so that a stretcher can be brought directly into the x-ray room and the man removed without being observed by others in the first aid section, and certainly not by any applicants for employment.

COMMENT

The examination layout described has more than doubled the efficiency of our examination procedure. It keeps applicants for employment from coming in contact with the other activities of the department.

CRITERIA FOR THE EVALUATION OF NUTRITION EXPERIENCE IN INDUSTRY

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Much has been written and spoken about the advantages of an improved nutritional status, and it is not surprising therefore that employers and workmen alike are eager to apply the facts of this branch of medical science as an aid to production in the war effort. Many conflicting statements are made and it is difficult at times to separate established facts from unestablished claims. If one could believe all the statements which one reads or hears, especially from organizations that have something to sell, but not limited to that field, it might be thought that the taking of vitamin capsules would speed up production or that the eating of candy bars would prevent industrial fatigue and reduce the rate of accidents. Just recently there came to attention a report to the effect that eating doughnuts between meals would reduce absenteeism. Manufacturers are being importuned to give their workmen chewing gum which contains ascorbic acid, or gum drops which contain salt, dextrose and ascorbic acid and which are said to prevent cramps, yield quick energy and serve as a preventive against certain industrial hazards. Unusual food preparations in the form of wafers or crackers, reputed to be palatable, and fortified with a number of vitamins and with inorganic salts have been represented as a convenient and sure means of improving the diet. Before accepting the claims which have been advanced for each of these and other similar products it would be well to ask where the evidence is. Are the conclusions supported by adequate scientific data? Do the representations have the approval of the several scientific bodies that have been established for the purpose of providing unbiased scientific and medical opinion of newer developments in this field?

From the scientific point of view there are two aspects to the problem of nutrition in industry: the determination of new facts through research on the effect of specific nutrients or groups of nutrients on the health and productivity of workers, and the application of known principles of diet to the special population group represented by the employees of a war industry. It is my purpose in the present report to mention some of the criteria that will help evaluate the experience of others and that might be helpful to the industrial physician who is considering undertaking an investigation or a nutritional program in an industrial plant.

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REQUIREMENTS FOR A SATISFACTORY RESEARCH PROGRAM ON NUTRITION IN INDUSTRY

The requirements for a satisfactory experiment on any aspect of nutrition in industry do not differ from those that apply to other investigations on human beings. First of all, no research should be undertaken except by a competent investigator. No better description of the ideal qualified investigator has been provided than that written by Karsner and Goldblatt.[1] According to their view a competent investigator is a person "who by training, experience, initiative, imagination, controlled curiosity and intellectual honesty is qualified to undertake an objective examination of the matter in hand without preconceived ideas or prejudice. He must attack the problem calmly, deliberately, with a clear program based on a well conceived hypothesis, and be thoroughly familiar with the work of others along the same and similar lines." Of course it goes without saying that such a person must be supplied with the materials and the equipment necessary for the problem to be studied.

It is regrettable that some investigations of the effects of the administration of vitamins or other ingredients of food have been made without sufficient attention having been given to the diet of the subjects. It is only by appraisal of the diet that a suitable experiment on human nutrition can be formulated. Workmen may be living in an unusual environment for many hours of the day and the question arises whether the dietary requirements might not be greater than normal for these persons. Only a careful evaluation of the diet on which these subjects are living will enable one to interpret the results of an investigation in general terms. With greater use of older workers, as discussed by Carlson,[2] there is the question of requirements for special age groups. Worthwhile studies can be made without giving special attention to the diet, particularly if there is made a thorough physical examination with the aid of some of the newer methods, developed particularly by Kruse,[3] but the field is limited and the results may not be susceptible of general application unless the diet of the subjects is appraised or controlled.

A dietary survey provides only an indication of the probable nutritional status of the workers in terms of some standard. At best the dietary survey is difficult to carry out and equally difficult to interpret. Huenemann and Turner [4] have found considerable discrepancy between dietary intakes computed first according to diet histories obtained by questioning the patient and, secondly, according to diet records obtained by weighing all portions of foods eaten over periods of ten to fourteen days repeated every three or four months for a year. The diet record of course is more accurate, but it repeatedly has been shown that even the diet record does not give a true picture if the contribution of each food is estimated from diet tables rather than from analysis of the foods that are eaten. For accurate metabolic data both diet histories and diet records are inadequate, but for purposes of showing the nature of the foods consumed and indicating where possible deficiencies exist the dietary study is invaluable and should be considered as a prerequisite for any suitable investigation of the nutritional problems of industry.

1. Karsner, H. T., and Goldblatt, Harry: Evaluation of Methods Used in Physical Therapy, Handbook of Physical Therapy, 1939 ed., Chicago, American Medical Association.
2. Carlson, A. J.: The Older Worker, this issue, p. 806.
3. Kruse, H. D.: Medical Evaluation of Nutritional Status, J. A. M. A. **121:** 584-591 (Feb. 20) 1943. Kruse, H. D.; Palmer, C. E.; Schmidt, W., and Wiehl, Dorothy G.: Medical Evaluation of Nutritional Status, Milbank Mem. Fund Quart. **18:** 257-298 (July) 1940.
4. Huenemann, Ruth L., and Turner, Dorothea: Methods of Dietary Investigation, J. Am. Dietet. A. **18:** 562-568 (Sept.) 1942.

There is a difference between dietary adequacy and nutritional adequacy. The first involves an evaluation of the foods consumed and the second a medical evaluation of the nutritional status of the patient. Many tests of physical fitness and of nutritional adequacy have been devised, and there is still a need for improvement through simplification of methods. In some of the more elaborate programs of research there are described a considerable number of physical, microscopic, roentgenologic, chemical and physiologic procedures. Not all of these tests have been thoroughly developed and applied, and certainly not all of them are needed in the appraisal of the nutritional status of workmen in order to make a satisfactory investigation in this field. Some of the equipment, such as the biomicroscope and the slit lamp, may be difficult to secure at the present time. The important point is that the measures of nutritional status should be objective wherever possible and adequate for the purposes of the investigation. Well trained investigators prefer to have records of objective tests interpreted by a colleague who makes his readings without knowledge of the treatment which the patient has received. This method of controlling the preconceived ideas and prejudices of the investigator, who after all is simply another human being, is to be highly recommended.

A properly planned experiment involves the establishment of suitable controls. For every group of treated men there should be an equal number of men who are untreated. It is preferable that the treatment should be done without the knowledge of the men and if possible without the knowledge of the investigators who are recording the results. This cannot always be done. If vitamin preparations are being studied, however, it is a relatively simple matter to administer a placebo to the control group. Because of the psychologic factor in all experiments with human beings it is worth while to have still another group whose members receive neither the therapeutic agent nor the placebo. In that way one can measure both the physiologic effect of the preparation being administered and the psychologic effect of giving something from which the workman expects to receive benefit. Differences in response between control and experimental groups should be significant as shown by appropriate statistical methods. To this end it is helpful if the investigation can be made on large groups over long periods of time. The number of persons in each group and the length of time of the experiment depend on the nature of the problem.

Finally it should be pointed out that any unusual results should be received with caution until the experiments have been verified by other competent investigators in other places.

THE MEASURE OF EFFECTS

Current interest in studying the nutritional requirements of industrial workers is prompted in part by the desire to improve the nutritional status and presumably the health of the workman, and partly by the desire to increase production for war purposes. Can improved nutrition lead to increased production, cut down spoilage, improve general efficiency, reduce absenteeism and diminish accidents? Many leaders in the field of nutrition believe that improvement in the nutritional status will do all of these things in time, but the criteria mentioned are measures of human performance which are influenced by many factors other than diet. The maintenance of adequate nutritional status is a health problem, and the effects of procedures for improved nutrition should be noted in the worker's body. Man has the

ability to do wonderful things even though he may not be in that condition often referred to as "buoyant health." The history of nations illustrates the ability of man to surpass his physical limitations. It therefore seems unfortunate to have the sole measure of any nutritional investigation one of these secondary effects. The physician and the medical investigator, it seems to me, had best devote their efforts and measurements to health matters and, while controlling the psychologic and other factors inherent in any study with human beings, recognize that the measurement and interpretation of such phenomena are primarily the concern of workers in other fields.

PRESENT KNOWLEDGE

Just a year ago a combined committee of the Council on Foods and Nutrition and of the Council on Industrial Health gave consideration to the practice of indiscriminate administration of vitamin preparations to industrial workers.[5] The decision was reached that this practice could not be approved because of lack of sufficient evidence to show that it was desirable from therapeutic, nutritional or economic points of view. To date there has been nothing reported that has led the councils to revise those conclusions. It is understood that several well planned experiments on the effect of administration of vitamins now are in progress. Some of these investigations are very extensive and it will be interesting to apply the criteria already mentioned to the reports when they are published.

As other speakers at this symposium will point out, the problems of nutrition in industry are so varied and so interesting that they present a challenge to investigators. Since the industrial worker is a member of the general population, it is apparent that he reflects the general picture of nutritional deficiency reported to affect the various sections of the United States. While there is considerable discrepancy between the reported incidence of dietary deficiency and the incidence of nutritional inadequacy, based on the experience and records of physicians, it can still be concluded that the diets of many persons can be improved with probable benefit to health. The working man is likely to be better fed than other members of the family, but there is evidence that there is much room for improvement in the nutritional status of the wage earner. In a study of the diets of aircraft workers in southern California, Wiehl [6] has found the choice of foods to be exceedingly poor. The amount of green or yellow vegetables and of citrus fruits or tomatoes, these two classes of foods being our chief contributors of vitamins A and C, were very low and the amount of milk consumed was less than that considered desirable. Taking as a criterion two thirds of the recommended dietary allowances of the Food and Nutrition Board, she found that the diets selected by these workers were deficient as follows: 14.8 per cent were low in vitamin A, 24.8 per cent in calcium, 43.2 per cent in riboflavin and 46.0 per cent in ascorbic acid. No doubt investigation would reveal a similar situation differing in nature and in degree among industrial workers in other parts of the country.

Under certain environmental conditions it is possible that there may be an enhanced requirement for one or more of the dietary factors. This is well known in the case of some industries where men are subjected to high temperatures and where, in order to replace the salts lost in the sweat, sodium chloride is made available. Whether more of the water soluble vitamins is required under these circumstances still remains to be demonstrated. Some of the vitamins, especially thiamine and ascorbic acid, have been suggested as prophylactic aids for protection against some industrial poisons. Work on these problems is still in the experimental stage. In the meantime a word of caution should be added. Where workmen are subjected to toxic substances it is important to continue to apply principles of sanitation and hygiene that are already established and known to be of value.

DIETARY IMPROVEMENT

Although studies of an experimental nature might well be undertaken only by those who have the training, facilities and time to make a worthwhile contribution, it is still possible for every industrial plant to contribute to the national nutrition program. As other speakers on this symposium will bring out, help and advice are available from trained nutritionists in every section of the country. Lunchroom facilities usually can be improved and in them the employees can receive a practical demonstration of the principles of wise selection of foods. Educational material can be provided to help workmen and their families to guide their food selections along scientific lines. All medical scientists interested in nutrition confidently believe that improvement in our dietary habits is capable of yielding tremendous dividends in time to come. Good diet does not necessarily assure good health, but it is one of the factors involved in the maintenance of health, along with adequate rest, tranquillity of mind and freedom from infection. Further, good diet is so easily secured in this country under ordinary circumstances, if one has the necessary knowledge, that it is a health factor every one should avail himself of. Minor changes in faulty dietary habits and slight adjustments in the selection of foods and meals are capable, if wisely done, of converting an inadequate diet to one that is entirely adequate, as judged by any standard.

Of all physicians the pediatrician no doubt understands diet and the resulting advantages best of all, probably because the requirements for growth are better understood than are the requirements for maintenance of the adult organism. To grow well the child must eat well and adequately. The flesh of the well nourished child is deposited in firm form on a well mineralized skeletal frame. The characteristic turgor of the muscles, the healthy appearance of the skin, the milk-blue color of the conjunctiva, the firm pink gums, teeth unaffected by dental caries, the tongue pink, uncoated and with well marked papillae and with regular margin, and the glossy appearance of the hair are some of the attributes that we all associate with the healthy well nourished child. The healthy child is a happy child. Something approaching the feeling of youthfulness should exist for the well nourished adult. Our criteria of health in adult life may be too crude to permit a proper classification of the better nourished from the ordinarily nourished person. The signs and symptoms of mild thiamine deficiency, for example, are vague but they appear to be real and they disappear on administration of thiamine to the deficient patient. Among the symptoms reported are a general lack of well being, easy fatigue, loss of efficiency in daily work, sleepiness, lethargy, lack of ambition, forgetfulness, constipation, poor appetite, irritability,

5. Indiscriminate Administration of Vitamins to Workers in Industry, Joint Committee of Council on Foods and Nutrition and the Council on Industrial Health, J. A. M. A. **118:** 618-621 (Feb. 21) 1942.

6. Wiehl, Dorothy G.: Diets of a Group of Aircraft Workers in Southern California, Milbank Mem. Fund Quart. **20:** 329-366 (Oct.) 1942.

paresthesias and gastrointestinal disturbances. Perhaps symptoms such as these, to which all of us at some time or another are subjected, may be alleviated to a considerable degree by devoting more attention to the diet. It will require considerable time, however, and many additional properly conducted experiments, before we can appreciate the potentialities of giving more attention to the nutritional quality of the foods we eat. Meanwhile, in the difficult days ahead before this war is won, with a need to conserve food and dietary supplements such as vitamins, it is the duty of all of us to obtain the best possible diet that our food supply and our knowledge of dietary requirements will permit.

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IMMUNIZATION FOR INDUSTRIAL WORKERS

PROBLEMS OF ORGANIZATION AND ADMINISTRATION

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The curative and the preventive treatment of disease, including all specific prophylactic measures, are functions of the physician. These functions, particularly those of immunization through the use of serums and vaccines, have been carried on in the home, the doctor's office, the clinic or the hospital, in connection with private practice; and in clinics and health services associated with public schools, colleges, public health departments and other public agencies, including the various military branches of the government. As a result of rapid developments in the field of industrial health, and particularly as a wartime measure, it is now necessary and desirable to give attention to these problems as they relate to the needs of the working population and to determine how best to organize and administer these preventive medical functions in industry.

To assist management and working forces, there are four professional groups that should be brought together in any well developed, cooperative plan for the immunization of industrial workers, namely (*a*) private practitioners of medicine, (*b*) industrial physicians, (*c*) public health authorities and (*d*) industrial health committees of state and county medical societies.

The private physician must be considered the key person in any immunization program for industrial workers. Upward of 85 per cent of medical service to industry is supplied by private practitioners. So far as possible and feasible, a worker should be referred to his own doctor for any immunization procedure which may be desired on a voluntary basis.

The industrial physician should function as a deputy health officer in practice if not in fact and should be keenly aware of all opportunities to suggest and promote generally accepted scientific methods for the specific prevention of disease. In those instances in which it seems desirable to have employees immunized by industrial physicians in plant medical departments, this should be done on the request or with the approval of the employee's own physician.

Local public health authorities in many communities make available necessary services for the protective immunization of the civilian population. The cooperation of community public health clinics should be sought by industrial management for the immunization of employees in special emergencies or where the services of a private physician or an industrial physician are not available.

Industrial health committees of state and county medical societies are logical groups to render advisory leadership and should include in their programs suggested procedures for the immunization of workers in industry. This would make it possible to take into account the variable local conditions and needs as they exist in different communities and industries. These committees, as recommended by the Council on Industrial Health of the American Medical Association, are made up of representatives of the groups just mentioned, thus making possible a close, cooperative relationship in working out a local program.

In general, it may be assumed that the working population is a cross section of the community, many of whom as infants and as preschool and grade school children have had the benefit of protective immunization against various diseases through the services of private physicians or school and health department clinics. While the control of these diseases rests largely with the community health authorities in cooperation with private practitioners of medicine, industrial organizations may do much to assist the public agencies by including attention to and education on these subjects in their own industrial health program.

SMALLPOX VACCINATION

Although the incidence of smallpox is currently at a relatively low level, there are still enough cases to serve as focal points for epidemics, particularly at this time when military mobilization and industrial expansion lead to more than the normal number of changes of residence and place of work. It would seem desirable, therefore, to continue our interest and efforts in smallpox vaccination.

ANTITYPHOID INOCULATION

Immunization against typhoid, being of a somewhat transitory nature, is not practicable as a routine among employed groups. It should be promoted chiefly among workers whose occupation requires considerable travel and contact with an outdoor rural environment, where special hazards may exist in regard to questionable drinking water and food supplies. Agglutination tests among those previously immunized would serve as a check on the need for further protection.

IMMUNIZATION AGAINST TETANUS

In industry, tetanus always must be considered a potential complication of accidental wounds. For this reason any program of immunization for industrial workers must take into account the possible use of tetanus toxoid, particularly for those whose work definitely involves the contamination of wounds with dirt or soil which may contain this bacillus or its spores. Some companies, according to the nature of their work, have promoted the giving of tetanus antitoxin to employees as a first aid measure following all cases of accidental wounds, while others have advocated it only in suspected cases.

IMMUNIZATION AGAINST UPPER RESPIRATORY INFECTIONS

If and when the value of protective vaccines or serums against the diseases of the upper respiratory system, such as the common cold and influenza, becomes

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as scientifically established and medically accepted as that of vaccination against smallpox, typhoid and tetanus, it will be early enough for industrial management and industrial physicians actively to promote and encourage such immunizations among workers. This statement is not intended to discourage well controlled experiments or demonstrations, particularly with newly developed products in the possible reduction of sickness absenteeism, lengthy disability and secondary complications and after-effects of colds or influenza.

CURRENT NUTRITIONAL ACTIVITY IN INDUSTRY

A REVIEW AND APPRAISAL

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The topic assigned to me is obviously one that cannot be discussed in any thorough fashion in the brief time at my disposal. Therefore I shall attempt merely (*a*) to present briefly some of the important phases of the subject that must occur to any thoughtful student of the problem of improving the nutrition of industrial workers and (*b*) to cite some examples of what is being done in this field.

Interest in this problem is comparatively new. In view of this it is natural to find some controversy existing in many industrial circles concerning the need for giving it any attention. To many a busy industrialist the idea that he is somehow responsible for properly feeding his employees means paternalism of an extreme degree. If his particular industry presents to its workers special hazards for which an improved diet is a preventive or an insurance against poor health, he no doubt feels willing to do what is called for in the circumstances. If such an industrial hazard cannot be shown to exist in his plant, he feels justified in objecting to any request that he "do something." Conservatism on his part is readily understandable. On the other hand it is generally recognized that there now exists a large body of knowledge in the science of nutrition which is not being applied as it should be, and there are possibilities for its application in the field of industry. It is now known that the shortcomings of diet can operate to affect health not merely in perfectly obvious fashion but also in very subtle and unappreciated ways. Therefore, improvement of the diet of industrial workers can have an important bearing on problems of absenteeism and the like.

The war has focused our attention on food problems. It has been said that "food can win the war." As a result of announcements regarding food shortages, the need to eat less of this and more of that in order that the armed forces may have what they require, the rationing of foods and kindred topics, housewives are finding it important to know some of the fine points of the science of nutrition and its practical application, how properly to substitute one food for another, and a host of related practical questions. Workers in industrial plants represent a very considerable part of our population. Along with everybody else they find themselves tremendously interested in this matter of the good diet; but with them still another reason operates, namely the importance of keeping well through proper eating in order that they may do their special part in making the materials of war needed by the soldiers in the front lines and the sailors on the high seas. It is probably safe to say that, as a result of this combination of circumstances and proper utilization of our resources, we should within the period of one year be able to do more in changing the food habits of our people for the better than we could accomplish in a decade or even a generation of peacetime. Industrial physicians should be interested in this for several reasons, not merely because of obvious disease of dietary origin that may occur in industry, but because, as a result of some current activities in industry, we are seeing hitherto unappreciated ways that industrial organizations can assist in solving what is really a problem of public education.

Current nutritional activities in industry present several categories of interest. Research is being conducted on many basic questions involving foods and special food factors. The data gained in these studies will do much to determine the validity of certain current practices and to indicate various possible lines of future action. For example, how good are the diets that given groups of workers select? Does the scientific evidence at hand indicate that the administration of polyvitamin preparations is a simple and desirable solution to the problem of improving and insuring the workers' health as far as that is related to diet? Are there any particular vitamins or other food factors that are especially important in certain industrial situations? Special attention is also being paid to the adequacy of plant facilities for feeding workers, to insure that they are under the supervision of persons competent in the science of nutrition and experienced in the application of that science. The basic problem of education of the worker and his family in matters concerning wise selection of food is now being attacked in many interesting ways. Let us consider briefly each of these current lines of activity bearing on our main theme.

NUTRITION OF INDUSTRIAL WORKER

The National Nutrition Conference held in Washington, D. C., during May 1941 had a section devoted to the problem of the nutrition of the indusrial worker. In its report that section called attention to the lack of scientific knowledge on which to base answers to numerous questions that were being discussed in many quarters. Later the Committee on Nutrition in Industry [1] of the National Research Council reached the same conclusion. Before long an opportunity presented itself for a carefully planned and controlled investigation in a large airplane factory in southern California. This plant employs from 30,000 to 45,000 workers. The plan of study called for careful physical examination of a representative group numbering at least 1,000. The examination was to include use of some of the latest technics believed to reveal early stages of vitamin deficiencies. Efforts were to be made to learn the dietary patterns of these workers and thus to evaluate their ordinary diets. The effects of the administration of vitamins were to be studied. The importance of examining the diets of such workers must be obvious. If the diets should prove to be good, then the effects of administration of vitamins might well prove to be negative. The final report of this investigation has yet to be written, and therefore I can discuss the study only in very general terms and advise you to be watch-

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From the Department of Physiological Chemistry, Yale University School of Medicine.

1. Committee on Nutrition in Industry: The Food and Nutrition of Industrial Workers in Wartime, First Report, National Research Council, Washington, D. C., Reprint and Circular Series No. 110, April 1942.

ing for the detailed report, which will be forthcoming sooner or later. It is possible to mention here something about the dietary habits of these particular workers because a report on this was published recently.[2] It appears that over half of the 1,100 workers studied did not get enough green and yellow vegetables, and nearly half ate too few citrus fruits and tomatoes. Almost all ate enough lean meat, but one third failed to get enough milk, and a fifth were low in eggs consumed. This proves particularly interesting because, according to the Stiebeling-Phipard [3] study of 4,000 family dietaries collected in different sections of the country, the southern California area proved to be one of the best on account of its liberal supply of milk and milk products, citrus fruits, fresh colored vegetables and meats. Evidently it cannot be assumed that, just because an industrial plant is located in a region well favored as regards supply of the important classes of valuable foods, the industrial workers in that plant will therefore be well fed, using these terms in their best nutritional sense.

The National Research Council's Committee on Nutrition in Industry has appreciated the importance of conducting similar studies in industrial plants located in at least four different sections of the country, because food conditions and other pertinent factors may differ considerably in respective areas. It has not been easy to get such additional studies carried out, but efforts are being made along this line.

It is an interesting observation that women workers as a rule make poorer selections of foods than the men. This proved to be the case in plants manufacturing munitions in England in 1917 and was even mentioned in a paper entitled "Women's Work" [4] included in "Occupation and Health," an official publication of the International Labor Office:

> Let it be added that women, although possessing a large amount of energy in reserve, tend to feed themselves less substantially than men do (consuming fancy foods of little nourishing values), and to restrict their nourishment in difficult economic circumstances.

Discussion of this point with various persons leads me to conclude that this may be true to an appreciable extent in this country even now, for reasons most interesting to contemplate. One suggestion is that women are notoriously prone to worry about gaining weight and the effect of this on their figure; among them the so-called Hollywood diet for reducing has many devotees. This means that they avoid foods rich in energy. Unless they are unusually careful when doing this they can easily develop dietary deficiencies. With more and more women going into industry these days it is evident that we have here a problem worthy of serious consideration. Obviously its main solution lies in education regarding foods and nutrition.

Another line of research related to our theme is the study of special industrial situations like the manufacture of trinitrotoluene and beta-naphthylamine, which may present interesting toxicities in workers exposed to these chemicals. Until recently it had been thought advantageous to give each worker with trinitrotoluene a quart of milk per daily shift. Although milk because of its high calcium content is of value in combating the intestinal absorption of lead, this food, according to Foulger,[5] has no particular ability to detoxify trinitrotoluene or prevent its absorption. On the basis of experiments with guinea pigs it appears that large doses of ascorbic acid are required to prevent loss of body weight when trinitrotoluene is taken. Foulger states that "as a result of our laboratory work we recommended in September 1941 that all workers exposed to trinitrotoluene in our plants should receive at least 100 mg. of vitamin C per day and 1 mg. of vitamin B_1. This practice is being followed." Confirmatory observations made in Britain have recently been cited by Holmes.[6] The evidence that vitamin B_1 is of value here does not seem to be as clearcut as that concerning the value of ascorbic acid. It seems evident that we have here an important line of research that needs to be followed further. Much of the work done thus far is inconclusive and therefore should be regarded as interesting and suggestive but not warranting dogmatic statements at the present time.

PLANT FACILITIES FOR FEEDING WORKERS

Another current nutritional activity in industry relates to the examination of plant facilities for feeding workers. Industrial physicians whose plants maintain cafeterias, dining rooms, canteen wagons or food dispensing machines can do much to advance this line of work. They can make certain that these facilities are under the immediate supervision of persons competent in the science of nutrition, particularly the application of that science. It has been learned that too often such facilities have been turned over to a concessionnaire whose chief objective is to operate them so as to show a profit. Extremely few of these concessionnaires have been found to know anything at all about relative food values. Their chief plan of action seems to be to "give the public what it wants." In one instance the plant's eating facilities were handled by an employee whose chief qualification for the job seemed to be that he could successfully feed a given large number of workers in a minimum time.

Observations have been made of what workers select when passing through the plant's cafeteria. Such observations indicate that approximately half of the workers are in need of special instruction on how to select foods wisely. This has led some plants to adopt subtle and indirect technics by which to get employees to make good selections, such as, for example, offering at a slightly lower price a special plate called a "victory lunch." Such a plate furnishes several of the protective foods which, if offered separately, would probably not be selected voluntarily. In those plants that have been quite successful in this sort of thing investigation reveals that the planning or supervising committee almost always had on it at least one person whose specialty was salesmanship, and who therefore was given a chance to bring the arts of his specialty to bear on this food education problem. This suggests that the industrial physician who is just beginning an attack on this problem in his plant will do well to establish a committee to help him and on this committee have representatives of the various interests, talents and responsibilities characteristic of his organization.

It is now possible to use in the plant's eating places enriched bread instead of the ordinary white bread. In the days ahead, when there will be shortages of

2. Wiehl, Dorothy G.: Diets of a Group of Aircraft Workers in Southern California, Milbank Memorial Fund Quarterly **20:** 329-366 (Oct.) 1942.

3. Stiebeling, Hazel K., and Phipard, Esther F.: Diets of Families of Employed Wage Earners and Clerical Workers in Cities, Circular 507, U. S. Dept. Agric., January 1939.

4. Women's Work, Article in Occupation and Health, An Encyclopaedia of Hygiene, Pathology and Social Welfare, vol. 2, pp. 1234-1262; see particularly p. 1239; International Labor Office, Geneva, 1934.

5. Foulgar, John H.: Importance of Nutrition in Prevention of Industrial Injury, unpublished communication.

6. Holmes, H. N.: Vitamin C in the War, Science **96:** 384-386 (Oct. 23) 1942.

various common foods, it will probably be necessary to limit the number and variety of items offered; to do this properly will require the attention of some one trained in the science of nutrition. Under such conditions it should be possible to reduce the offerings to a relatively few extremely valuable foods, and employees will doubtless accept this limitation of choice because we are at war. To the extent that this situation is met by wise choice of items to be offered, the nutrition of the employees in that plant will be improved accordingly.

The plant's eating facilities can be utilized to advantage in educating workers by the preparation and exhibition of good well selected meals. Demonstrations of this sort have an educational value that is difficult to overestimate. In Britain it has been found that such food demonstrations in the industrial canteens have a favorable effect on the worker and even on his wife; what the worker has experienced in the plant, he demands in the home as well. What the worker has seen with his own eyes he remembers much better than what he has heard through his ears or read in a leaflet.

Other interesting points that might be mentioned here relate to the proper handling of food in its preparation for the ultimate consumer. It has been learned that many of the cooking methods in common use in restaurants, hotels, even hospitals, result in greater losses of nutritive values than are necessary. Many foods are first cooked and then kept on the hot table for from one-half to two hours, and such an additional period of heat has been found to result in losses. Cabbage, which is a good source of ascorbic acid when the leaves are fresh and unmutilated, so to speak, soon loses the vitamin when the leaves have been chopped up, thus exposing the cells to contact with air. The applications of such facts are obvious, but what is important here is that these applications too often are not being made. Competent nutritionists working under the supervision of the industrial physician and instructed to make the appropriate changes in methods of cooking and food handling can do much to remedy this situation and to make the plant's facilities for feeding workers do what is expected of them. Incidentally, it may be remarked that the physician who undertakes this line of work will acquire from his nutritionist quite an education in practical food matters.

EDUCATION IN FOOD AND NUTRITION

Underneath this question of improving the nutrition of industrial workers lies the fundamental problem of education in matters of food and nutrition. This education can be accomplished in part through efforts made by the plant itself and in part through general community, state and national effort. Let us analyze this briefly.

Activities at the community level naturally make the closest contact with the food consumer. At the county and state level the activities are more definitely of the coordinative, pooling of information and planning type. At the national level they are based on a view of the nation as a whole, the nation's relations to other countries, the special needs of the war effort, the balancing of national supply against national demand, the formulation of main policies that are in the interest of the nation as a whole, the implementation of these policies and coordination of them with activities at the state and community levels. Certain national activities, particularly those related to food advertising and the activities of industrial organizations which are interstate in character, do reach rather definitely the food consumer. This is well illustrated in many current nutritional activities dealing with this problem of education.

Many of our large industrial organizations have made valuable contributions in this connection. Concerns like Westinghouse Electric and Manufacturing Company, the General Electric Company and Servel, Inc., for example, in peacetime are manufacturers of household appliances such as refrigerators and electric stoves used for storing and cooking foods. Such firms have long had in their employ home economists and nutritionists trained to demonstrate these applicances, an activity that is educational in character. These concerns have devised ways of bringing to bear on the broad educational problem their trained personnel and other resources.

The first action taken was to educate their own employees and their families through carefully planned classes with demonstrations and the issuance of literature specially written for the purpose. The success attending such initial activities was so great that the material was soon made available to other firms. This led to the formulation of plans by which any industrial organization, regardless of its size, can, if it wishes, now do something to educate its employees and their families by using material prepared by these several utility concerns. It is possible to establish "Health for Victory" clubs, a Westinghouse contribution, for which suitably written material is provided for the class leaders and all members. This particular scheme has developed to the point where any group of interested persons in a community can use it. Just as the National Red Cross will establish nutrition classes for any interested group, whether it is a mothers' club, a parent-teacher organization, a group of church women, a club of lodge members or the wives of members of a labor union, in the same way it is now possible to establish nutrition clubs using the teaching material furnished by the corporations just mentioned. In some cities, Chattanooga, Tenn., for example, the home economists of the utility manufacturer, the General Electric Company in this particular case, actually gave nutrition courses for the National Red Cross. In Chattanooga they conducted at one time five nutrition classes a week and taught a canteen class for the volunteer Red Cross canteen workers.

Approximately three hundred concerns have made, or are making, use of the material prepared by the Westinghouse Company for clubs, in some cases consisting of plant employees, in other cases made up of interested persons in the community in no way connected with particular concerns.

Servel, Inc., has featured a plan that is particularly serviceable for the concern operating a cafeteria or similar facility. It also utilizes the local gas company and through it distributes teaching material to all interested parties.

In Peoria, Ill., the Caterpillar Tractor Company, through an interested plant physician, has taken the lead in getting all firms in the city active in this educational work through the formation of such clubs as have just been mentioned and in other ways.

In Omaha the local program was primarily under the Civilian Defense organization assisted by a committee of the meat packing establishments. As part of the class demonstrations, samples of meat were donated by the local packers, and the Union Pacific

Company ran in the local papers full page advertisements of the community's educational campaign.

The Inland Steel Corporation has run its own employee classes, but these are under the management of the labor committees, so that in this case the activity might be called a labor project. The plant management makes facilities available and defrays the cost of the special teaching literature.

In some cities the direction and planning have originated in the community instead of in industrial concerns themselves. A good example of this is seen in the so-called Bridgeport Plan, developed in Bridgeport, Conn. In this case the community committee, under the direction of a physician and his enthusiastic colleagues and assisted by the local gas company, felt that the logical approach to the problem was through the lunch box, and the community's campaign was worked out accordingly. As a result of the tremendous interest thus aroused, many of the local industrial plants became interested; they requested advice, which was gladly given, on their feeding practices and programs. In pushing this community program there was developed the slogan "Pack A Lunch A Man Can Work On." Other slogans have come into the picture. As part of the Servel collection of literature one finds cartoons featuring Hitler's face and the slogan "Eat To Beat The Devil." In Rockford, Ill., the publicity of a campaign mentioned a "dynamite sandwich." This name apparently arose from a conversation two men had about a particularly valuable sandwich that was being exhibited. One man remarked that it certainly packed a lot, or words to that effect; his companion said "Yes! It's got dynamite." And so we now have the "dynamite sandwich," a term that a dry professor like myself would probably never have thought of in years but one which for a popular campaign does have its special appeal to many people for whom a special appeal of some sort is really needed.

These educational services developed by industrial organizations have concentrated on the most practical everyday problems that the food consumer faces. Technical material is always translated, so to speak, into common terms of simple well known foods and quantities, and illustrations are freely used. The material provided for nutrition clubs is remarkably complete. All that the teacher needs is given, carefully outlined. No one can examine this literature without being impressed with the teaching skill and genuine salesmanship of things nutritional that have gone into its preparation.

At the beginning of this paper I mentioned the objection frequently encountered among industrialists to their firms undertaking any work dealing with the nutrition of their workers unless some industrial hazard preventable by diet or special dietary factors can be shown to exist in their given situations. In view of what has already been done by industrial units just as a contribution to our broad educational problem, and mentioned here only briefly, it seems to me that every interested industrial physician now has all that he needs to justify his firm finding some way to participate in this phase of current nutritional activity. This view receives added emphasis when one considers also the voluminous literature prepared by our government bureaus and agencies and readily procured from the agencies themselves, the national nutrition office and various state and local committees. To the extent that a firm participates in this international effort through any of the many ways open to it, to that extent it can be sure that its employees have learned how to secure their own health through the proper use of food, and how they can help to win the war through the best possible use of our national food resources.

333 Cedar Street.

HOW TO GET ALONG WITH LESS HELP

LEGITIMATE SHORT CUTS TO ROUTINE SERVICE

CAN WE SECURE AND TRAIN TECHNICAL ASSISTANTS FOR CERTAIN ROUTINE INDUSTRIAL HEALTH PROCEDURES?

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In these wartimes, among the many problems confronting us in the practice of industrial medicine and surgery, is the necessity of doing more work in a shorter period of time with less help. The very rapid expansion of some of our industries has placed tremendous demands on the medical profession. Not only has the actual enlistment of trained industrial medical personnel depleted our forces, but one of our sources of available medical personnel is almost completely gone. These are the young physicians and surgeons who have completed their internships and residencies and normally would be part time medical members in industry from two to five years or more. Practically all of these young men are taken into military service immediately on completion of their internships. Those available because they have been rejected from military service are very few, and even then more interesting or lucrative opportunities attract their services.

The necessity for devising short cuts is indicated by the number of persons per physician in industry as compared to civilian practice or even military service. We are informed that the usual personnel for a medical battalion is eight physicians, two dentists and from ninety to one hundred enlisted men who are responsible for a thousand or possibly twelve hundred persons. In industry these ratios are tremendously greater per physician, ranging all the way from two thousand to five thousand employees per physician. A hazardous war plant not so far away, where frequent periodic examinations should be done regularly, has six physicians for thirteen thousand employees, working three eight hour shifts and treating all the injuries as well as being responsible for the health of their workers and their preplacement examinations. Is it any wonder that some of these physicians are working fourteen to sixteen or even eighteen hours a day?

What legitimate short cuts may be devised in our routine services? First, I would say, is the necessity for adequate up to date equipment. Why should the industrial physician handicap himself with old or poorly functioning equipment? He should have the best of tools, adequate space, conveniently designed examining rooms, dressing stations, treatment and consultation rooms. Good light, adequate ventilation and pleasant surroundings, and proper physical equipment are the least that industry should provide for their medical departments. Most of the larger industries have recognized this advantage, but I know of one large industry in this city doing about 75 per cent war work, expanded

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to several times its usual enrolment, where the medical director has been trying to get new accommodations for his medical department for the past five or six years without success. The excuse that such equipment cannot be purchased because of war conditions is a mighty weak alibi.

Second, the industrial physician and surgeon should devise improved methods of treatment. Sets of rustless instruments with needles already threaded and placed in sterile packages can be run through a steam sterilizer at 20 pounds pressure for thirty minutes days in advance and kept available. When minor surgery presents itself, all that needs to be done is to open up the sterile towel and package and proceed immediately. In one plant the nurse had actually traced the exact size and shape of the enclosed needle on the outside of the package to save the doctor time in selecting a desirable sized needle and suture. Two, 5, 10 and 20 cc. syringes are likewise put up sterilized in advance, ready for immediate use. Eye spuds so sterilized in advance also are kept in small vials, the corks being inserted on removal from the sterilizer.

In a plant the other day I saw a nurse checking the vision by having the applicant start at the top and read down all the letters on the eye chart from 20/200 to 20/20. She could just as easily have skipped all the larger letters, being sure that the applicant was not cheating on the 20/20 line by substituting one or two different charts and have him read them backward as well as forward.

Third, simplified records are very definitely in order. Records where history questions and past medical history have to be answered Yes or No are very time consuming. This may be necessary to legalize a life insurance examination, but a simple check mark or zero can be made ever so much faster. A lot of the questions are not worth the time and space consumed in their asking or recording. Some insurance companies have simple medical blanks, others very complicated ones. Such a simple question as "For what period of time is he entitled to total disability?" saves answering a lot of unnecessary questions and places the responsibility on the integrity and honesty of the certifying physician, to whom it belongs in the first place. Did you ever stop to consider the amount of the negative findings recorded in the files of some of our larger medical departments and of just how much value these efforts are? One very practical director the other day pointed out that only abnormal or positive findings should be recorded; all others are assumed to be negative, something very worth while thinking about when you revise your forms next time.

Screening tests, whether they be x-ray films of the chest, blood pressure readings, urinalyses, pulse rates or weights, are of value only as far as they reliably portray positives or abnormalities in their findings.

Fourth, efforts should be made to avoid unnecessary preemployment examinations. During the first part of December 1942 a young man whom I examined boasted of having had six preemployment examinations in the preceding four months. He almost talked himself out of a job when I realized the wasted efforts of all those physicians' examinations of such an unstable employee, shifting employment with the slightest whim or breeze. The rapid turnover in labor has been a serious problem in some medical departments. Recently one of the larger railroads found that by the time preemployment examinations cleared the general office almost two weeks after being done, half had already left the employment. They met this problem by allowing applicants to work two weeks without examination, and those that remained were examined at that time: not ideal, but a practical way of handling this problem.

In some medical departments the preemployment examinations and periodic health examinations are being curtailed for the duration. It is pointed out that these applicants or reexaminees often purposely hide or cover up symptoms and maintain an attitude of "Here I am, a specimen in perfect health. Now try to find something wrong with me." The examiner has to go over him with a fine tooth comb to bring out a true appraisal of the man's condition. On the other hand, when an employee has reported a sour stomach and abdominal pain several times, blood in his stools or recurrent persistent coughs and colds to the plant nurse or to the medical department, such positive findings are of the greatest significance and warrant careful work-up laboratory studies and diagnostic consultation—again an endeavor to apply our efforts and work to those who need it most, and where our efforts will be productive of the greatest results. Another group justifying reexamination are those returning to work after a period of three days or more of absence from work. Studies of these cases bring out interesting findings.

Fifth, many examiners are suggesting a simplified form of preplacement examinations. In reality they are inspections of physical appearance, functional tests of joint movements and the results of simple observations such as pulse, respiratory rates, temperature, blood pressure readings, vision and hearing tests. These are all simple procedures that can legitimately be done by any nurse under proper medical supervision. Only those with abnormal findings need be referred to the physician for study and decision. This also serves to eliminate one of the monotonous, fatiguing and exhausting phases of an industrial physician's work. What challenge is there to a physician's knowledge and eight or ten years of medical preparation to be doing routine preemployment examinations all day long? He is entitled to the joy and happiness in his work and the satisfaction of having accomplished something worth while.

TECHNICAL ASSISTANT FOR ROUTINE PROCEDURES

I have been asked to discuss the question "Can we secure and train technical assistants for certain routine industrial health procedures?" This, I would take it, goes beyond the graduate R.N. nurse assistant and brings up the question of certain duties and functions that can be delegated to persons with special training and qualifications but who have not had the advantage of a physician's or nurse's training. Let us first consider whether such are employed at present. I find that nearly all of our pathologic and clinical laboratory workers fall into this classification. Such medical technicians are doing blood counts, urinalyses, blood chemistry determinations, serologic and other types of laboratory work efficiently. Wise it is that their training should meet certain minimum standards and that schools training such technicians should meet an approved standard rating. One of the finest contributions to this field has been made by the American Society of Clinical Pathologists, which organized a registry of medical technicians in 1928. This registry has done much to raise and maintain the quality of the medical technicians. A statement made by Dr. Walter Simpson in 1933 is of the greatest significance as a guide in this field: "The code of ethics of the American

Society of Clinical Pathologists demands that all registrants must agree to work at all times under the supervision of a qualified physician and that they shall under no circumstances on their own initiative render written or oral diagnoses, except so far as self evident in the report or to advise physicians or others in the treatment of disease."

There are other medical technicians that are recognized as auxiliary in the practice of medicine. Some of these are x-ray technicians, physical therapy technicians, occupational therapy technicians, hydrotherapy, dietetic, anesthetic and many other forms of medical technicians. Let us for a moment consider the technical assistants of an allied profession, namely dentistry. Almost every dentist has one or more full time assistants at his beck and call to assist in the routine work. These assistants only rarely have ever had any professional dental schooling and teaching. They are usually persons with a natural inclination to serve, assist, learn to improve their accomplishments and incidentally get joy and happiness out of their work as well as an average living. Might we likewise give consideration to somewhat similar assistants, if and when the shortage of physicians and nurses makes this desirable and advisable? The training of medical secretaries and personnel for taking medical histories has already a good start in some localities. The taking of histories and notating of normal and abnormal physical findings are frequently routine functions of junior medical school students. The public as well as the medical profession has found that, when registered nurses are no longer available, practical nurses are frequently called in during an emergency. The important thing is that medical technicians in whatever field of endeavor they wish to become proficient should have the specialized training considered desirable. We have such lists of approved schools for chemical laboratory technicians, x-ray technicians, physical therapy and occupational therapy technicians. There are possibly others. Might it be possible to set up standards of training and instruction for medical technicians or technical aids to physicians and surgeons in industry? It is a field well worth exploring. I should think that the selection of such aids and technicians is most important. One would like to select those with qualities most likely to succeed in such an undertaking. Studies might be carried out to devise various types of aptitude tests and personnel and psychologic screening tests for the selection of those most likely to succeed. These workers are entitled to happiness and satisfaction in their work as well as a satisfactory living. I have had a most interesting and constructive communication from Mr. C. d'A. Gerken, director of personnel of Rochester Junior College, Rochester, Minn., who speaks with authority and the keen observation of a student pioneering in some of these personnel fields of study.

Now for a practical approach to this problem as to just what type of work and duties such technical aids and assistants might do. First, they must have adequate medical supervision at all times in all their work and must not diagnose nor treat ill or injured patients. They can be trained to take medical histories of illnesses and injuries competently for review by the examining physician. Heights, weights, simple inspections, color vision or urine tests, even respiratory and pulse rates might come within the scope of their endeavor. Individual capabilities and proficiencies will vary so much that the amount and type of work will have to be delegated to them by the responsible physician.

Around industrial medical departments are many such duties to be assigned to these technical physicians' and nurses' aids: maintaining of equipment, ordering, storing supplies, manufacturing or packing supplies. All the secretarial, clerical, recording and filing type of work falls into this category. Also there are certain types of health instruction, the chaperoning of women workers during examination by male physicians, the inspection of lunch rooms and inspection of general plant housekeeping, that can efficiently and properly be done by these workers.

With the safeguard and precaution that all their services be properly delegated and supervised by the responsible physicians and nurses, it seems to me that the judicious use of technical physicians' and nurses' aids offers the best solution for supplementing the shortage of physicians and nurses which has already occurred in some localities. As the war effort continues to expand, taking more and more physicians and nurses, this shortage promises to become more acute in all industries and all localities.

28 East Jackson Boulevard.

THE HEALTH AND SAFETY PROGRAM OF THE U. S. MARITIME COMMISSION

AND THE U. S. NAVY IN CONTRACT SHIPYARDS

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The Maritime Commission and the Navy together now employ about a million workers, men and women, in contract shipyards. These yards do not include government navy yards such as those at Brooklyn, Norfolk and Mare Island. In the case of the Maritime Commission general policies emanate from Washington, but the contract supervision comes from Maritime's regional directors at the four offices in Philadelphia, New Orleans, Oakland and Chicago. In the case of the Navy, supervision emanates from the Supervisor of Ships in the Office of the Assistant Secretary of the Navy and then through the Navy's representatives at the yards themselves and in the appropriate Navy District offices.

In both cases contracts are let by the commission or by the Navy to private contractors. Methods used, general processes and the like are left to the contractor, the government keeping hands off except for inspections, leading toward final approval and acceptance of the ships.

The size of the yards varies all the way from a few men to many thousands. Women gradually are getting more and more into shipyard work, the actual percentages, as one might guess, varying with localities. In general the day shift takes in something over half the total number of workers in each yard, and the remainder are divided up between the second or swing shift and the third or graveyard shift.

Many of the yards, in fact most of them, have as little as 1 or 2 per cent of experienced men—men who have worked in shipyards before this war. Some of the

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best yards that we have are built on made land in localities where ships never have been built before. Consequently, transportation and housing problems have been and often still are very serious.

Last summer the commission and the Navy appointed John M. Roche and myself as consultants on safety and health. A survey of selected yards around the country was made and a set of minimum standards for health and safety were evolved. These standards were presented before the various yards and the labor management groups and adopted on December 7 and 8 last at a conference held in Chicago. They will serve as our future guide for health and safety control in all the contract yards.

The Navy has assigned eight experienced officers to work with myself while Maritime has obtained the services of four safety engineers to work with Roche. These men will serve as consultants to all the contract yards throughout the country. Laboratories will be established on the East and West Coast as they are needed.

In general the health and safety problems confronting us are comparatively simple, but because we have such an overwhelming percentage of green employees the task of carrying them out is not always easy. The pressure to turn out ships is great—it should be, for the need is urgent—and often we must condone practices that we would not accept in peacetime. We are glad to be able to say that both management and labor appreciate the situation and their cooperation has been most gratifying.

Eye flash burns and foreign bodies are among our most serious and most frequent causes of lost time. Obviously they are preventable, but we are building ships in yards which often cover very large areas. Welding goes on everywhere, and it is very difficult to prevent flash burns of the welder's neighbor or even of an experienced welder who lifts up his welding shield momentarily and happens to be near another man who is welding.

Because of the general time and construction schedule it is common maritime practice to paint all metal surfaces as soon as possible with red lead. Generally this is done after the metal plates are in their final position, but some pieces are painted while in the yard. Welding painted surfaces into place presents a serious risk of lead poisoning, so that this practice has to be watched and the welder protected.

Similarly paint spraying, which we do on a large scale, requires special protection for the sprayers and for the helpers and even for men in the immediate vicinity.

We propose to allow the use only of masks and respirators with Bureau of Mines approval. Heretofore there has been no control at all of the quality of protective equipment used in contract yards. It will be our job to see that such control now is put into effect.

In naval craft electric wiring is far more elaborate than on maritime freighters. Necessarily the Navy's wiring specifications demand better insulation than we need on freighters, so that it is common practice to protect these cables with insulators such as the fire resistant chlorinated naphthalenes and phenols. These may cause dermatitis unless proper precautions are observed, and we have met such troubles in some of the contract yards.

The rapidity with which all ships are built today is due in no small measure to the excellence of the construction planning. It would be impossible without arc welding, which can be seen today in all our large yards. Prefabrication of huge portions of the ships is the normal practice in all yards. Some of the jobs, such as fore and after peaks and double bottoms, put the men in comparatively small spaces in which special ventilation is necessary to control welding fumes. All our health and safety consultants are prepared to advise the yards as to the adequacy of their ventilation and to make such air analyses as may be needed.

In general the medical and safety departments in the various yards are well organized and well run. We have been hit badly by the shortage of doctors in some districts, especially in rural communities, but probably we are no worse off than many other industries. We doubt if our situation in this respect presents any new problems.

Our work cannot be done as it should without preplacement physical examinations and occasional check-up examinations of men engaged in jobs potentially risky to themselves or to their fellow employees. Labor is apprehensive about physical examinations because of their occasional unintelligent use in the past. We are pledged to see that such examinations are done as they should be and that the results are used solely to help the men and thus to help us relieve the shortage in manpower. After all, our most valuable national asset is manpower. We believe we have the best there is, and our health and safety program is dedicated to its service.

THE NATIONAL NUTRITION PROGRAM FOR INDUSTRY

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It is hardly necessary to recite to a group of this character the advantages which might reasonably be expected to accrue for one who is careful to maintain himself in an optimum state of nutrition. That not only the individual but the nation as a whole would derive benefit from a system which would insure each and all of us an adequate supply of foods to provide all our dietary essentials will also be accepted, I believe, without argument. Unfortunately the food situation in this country has never approached such an ideal state. Prior to the onset of the present war, many millions of American people were not eating the minimum amounts of all the essential food factors needed to keep them in good health. In part, economic factors were to blame; every dietary study or nutrition survey of population groups has clearly shown the greatest incidence of poor diets or of malnutrition to be in the economically poorest one third of the population. However, economic factors have not been, by any means, the sole determining forces, as evidenced by the fact that poor diets and malnutrition occur in all economic strata. Ignorance, food habits and prejudices and problems of supply have been responsible for a considerable proportion of the

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malnutrition in the United States. The diets of war workers cited by the Committee on Nutrition in Industry in its report [1] and the results of the dietary studies on aircraft workers in California [2] nicely illustrate the roles played by ignorance and food habits.

In the California study, 56 per cent of 1,103 aircraft workers were found to ingest less than the recommended amounts [3] of green or yellow vegetables, 49 per cent had 0 to 4 tomatoes or citrus fruits a week, 33 per cent had 0 to 5 glasses of milk a week, 0 to 1 egg was eaten by 23 per cent, while only 1 per cent consumed meat as infrequently as twice a week. For most of the men an increased consumption of milk and of citrus fruits, tomatoes and certain green vegetables would correct the major deficiencies of riboflavin, calcium and ascorbic acid and raise the intake of most other nutrients. It is of interest that 85 per cent of the diets furnished the recommended amounts [3] or more of protein. This survey was made between November 1941 and February 1942. There is reason to believe that the supply of food to this region has deteriorated since then, particularly in relation to meat, milk and milk products, eggs, butter, tomatoes and canned goods.

Since the beginning of the war the problem of food supplies and distribution has achieved a position of paramount importance in practically every section of the country. Paradoxical as it may seem, this has tremendously increased the importance of the national nutrition program. No matter how efficient a distribution system may be set up or what efforts might be taken to stimulate farm production, it is most unlikely that we can continue to supply the armed forces and our allies with the foods which they must have, without bringing about some decided changes in the eating habits of the civilian population. Control of the production and distribution of foods is the responsibility of the Office of the Food Administrator. The prime function of the Nutrition Division of the Office of Defense Health and Welfare Services is, through the national nutrition program, the education of the American people so that every one will make the best possible use of available foodstuffs to meet his nutritional requirements. If morale is not to be adversely affected, changes in food habits necessitated by shortages of particular food items must be preceded and accompanied by effective nutrition propaganda showing that such changes in food habits are not detrimental to health and are often beneficial, that they need not detract from the joy of eating and that the government is doing everything within its power to insure an adequate diet for all of us.

It is particularly important that the nutritional status and the morale of war workers should not be adversely affected by food shortages, poorly prepared and poorly balanced meals and inadequate feeding facilities and eating conditions. The aim of the national nutrition program for industry is to prevent loss in war production through illness and dissatisfaction of war workers arising from poor dietary conditions and misunderstandings of food needs.

The nutrition in industry section is an integral part of the national nutrition program. It constitutes one of the two major steps taken by the nutrition division of the Office of Defense Health and Welfare Services to tie the national nutrition program closely to the war effort. The other major step is the adaptation of the program to serve as a prime force in promoting willing acceptance of rationing and an equitable distribution of available foodstuffs compatible with the maintenance of good nutrition.

The nutrition in industry section functions mainly through the organization set up by the nutrition division for the implementation of the national nutrition program, i. e., through the eleven regional nutrition representatives and the state and local nutrition committees. Arrangements have been made for the appointment of an assistant nutrition representative for nutrition in industry in each region. It is probable that most if not all of the assistant representatives will have been appointed by February 1943. In the interim the regional representatives are attending to the industrial aspects of the nutrition program in their regions.

Approximately one third of the state nutrition committees have formed subcommittees on nutrition in industry. It is expected that the remainder will rapidly follow suit. The membership of the subcommittees on nutrition in industry quite generally includes representatives from health departments and their industrial hygiene divisions, industry and industrial organizations, industrial physicians, labor, labor departments, food producers and merchants, caterers, service clubs and newspapers, in addition to nutritionists. Both the regional representatives and the assistant representatives of the nutrition division of the Office of Defense Health and Welfare Services are ex officio members of the nutrition committees and their subcommittees on nutrition in industry. The subcommittees are extremely useful, as they provide the nutrition committees with a direct contact with those groups in the state and community which are in a position to implement their recommendations. Such subcommittees are also frequently eminently qualified to define the needs of industries and war workers in their communities.

In addition to the organization set up for the national nutrition program, the nutrition in industry section of the nutrition division of the Office of Defense Health and Welfare Services has an arrangement with the Industrial Hygiene Division of the United States Public Health Service and the Ordnance branch of the United States Army whereby an inspection of meals, feeding conditions and requirements is to be included in industrial hygiene surveys of army ordnance plants. Reports prepared on nutritional conditions in army ordnance plants are transmitted through the industrial hygiene division of the U. S. Public Health Service to the army ordnance headquarters in Chicago as integral parts of the regular industrial hygiene reports. The regional nutrition representatives are requested to take whatever steps may be indicated to remedy community feeding problems about such ordnance plants.

Dr. Townsend, chief of the industrial hygiene division of the U. S. Public Health Service, has informed the nutrition division of the Office of Defense Health and Welfare Services of the close relationship which exists between his division and the various state industrial hygiene departments. As the "inplant" feeding problem logically belongs in the field of industrial hygiene, Dr. Townsend has requested that the state industrial

1. The Food and Nutrition of Industrial Workers in Wartime, Committee on Nutrition in Industry, National Research Council, Washington, D. C.

2. Wiehl, Dorothy G.: Diets of a Group of Aircraft Workers in Southern California, Milbank Memorial Fund, 40 Wall Street, New York.

3. Recommended Dietary Allowances, Committee on Food and Nutrition, National Research Council, Washington, D. C.

hygiene officers be kept informed of and be asked to participate in nutrition in industry programs within their states. This matter has been well taken care of by those state nutrition committees which have made the state industrial hygiene officers responsible members of the subcommittees on nutrition in industry.

At present, navy yards and shipyards under control of the Maritime Commission are contacted only on requests by individual yards. Such requests are handled through the regional nutritionists.

Many industrial feeding problems arise from or are aggravated by difficulties in transportation, inadequate housing, poor sanitation and inadequate community marketing and eating facilities, problems which are the direct concern of governmental bodies other than the nutrition division. The regional nutrition representatives are responsible for bringing such conditions to the attention of the regional director of the Office of Defense Health and Welfare Services when they adversely affect the nutritional status of the worker. The nutrition representatives are consulted by the representatives of other divisions of the Office of Defense Health and Welfare Services when any of the latter are contemplating procedures which may have nutritional implications.

No program of industrial nutrition can be complete without an effort to improve the eating habits of the worker in his home and his community. This can best be achieved by a system of adult education which recognizes the intimate and personal nature of food habits and is fully aware of the subtilties needed to inject a lesson of science into well established and cherished habits. Obviously the homemaker has to be approached and also the local caterers and storekeepers, with added problems as homemakers are drawn into industry.

It was realized early in our program that the prestige and cooperation of existing labor organizations must be solicited to make the nutrition message more acceptable. A National Labor Advisory Committee was set up representing unions within the Congress of Industrial Organizations, the American Federation of Labor, their respective auxiliaries and the Railroad Brotherhood. Our office is in constant touch with each representative regarding any matter within affiliated organizations.

Both the national Congress of Industrial Organizations and the American Federation of Labor organizations have dispatched messages to all their state and city organizations urging them to cooperate with the nutrition committees. Each labor group is urged to set up its own committee on nutrition, the chairman of which may function as a delegate to the local nutrition committee.

Possible functions of local labor nutrition committees are (1) to set up small nutrition committees in each plant to cooperate with the plant cafeteria management and with other inplant activities, (2) to consider the feeding problems in the absence of cafeterias, (3) to exert an influence on proprietors of vending machines and neighborhood stores or stands, (4) to help the packed lunch campaign, (5) to pool information and popularize successful solutions, (6) to set up nutrition campaigns, demonstrations and courses at union meetings and obtain material, movies, advisers and leaders from local nutrition committees or other qualified sources and (7) to harmonize these activities with sound attitudes toward the rationing situation, availability, shortages, alternatives and whatever else the food situation may require.

To assist this program we provide news and feature articles regularly to the labor press. The American Federation of Labor has a feature service supplying about 450 union papers. In addition, a special section on labor and food for war workers has been set up in the WPB labor press service which reaches 800 labor press editors weekly with 3,000 words on nutrition in industry.

Close relations have also been developed with the Association of Industrial Editors of employee publications. Our new service supplies 1,200 industrial magazine editors and many other industrial plants a variety of items each month for use in employee publications and on bulletin boards. Weekly releases are also sent to editors of women's pages of newspapers. All releases are sent in response to written requests and are distributed by OWI, the Office of War Information.

Biweekly releases to the victory letter, to *Victory* and to such government publications as *Consumer's Guide*, Department of Agriculture, and *Domestic Commerce*, Department of Commerce, are provided.

We gladly offer our services to industries such as Servel, Westinghouse and General Electric for the review of material to be included in the educational programs which they offer industrial plants. These programs are aimed at the industrial worker, his wife and his landlady and have valuable potentialities.

I have described in considerable detail the organization of the national nutrition program for industry on the federal level. However, this represents only part of the driving force of the program and a comparatively small fraction of the working organization. The great burden of the work is and must be borne by the state and local nutrition committees with their subcommittees on nutrition in industry. Theirs is the task of defining local problems and of formulating programs to meet local situations. They must be prepared to provide qualified instructors for nutrition classes and to give advice on plant feeding to industrial plants on request. It is to them that industrial and commercial caterers must turn for advice on nutrition. It is for them to decide which of the nutrition programs prepared by industrial concerns they can cooperate with in their communities. It is their responsibility to advise on posters, fliers, pamphlets and other educational material to be used in nutrition work in their communities. Last, but not least, it is their function to obtain the cooperation of all sections of the community in the nutrition program. The nutrition division of the Office of Defense Health and Welfare Services with its regional representatives can advise, stimulate and guide the state organizations but, in the last analysis, the success of the national nutrition program for industry depends on the latter.

We know that states' nutrition organizations are qualified and willing to aid industry and labor in setting up and running effective nutrition programs. We strongly urge industry to call on the state and local nutrition committees for the services they are prepared to give.

ACUTE SODIUM FLUORIDE POISONING

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The recent accidental ingestion of sodium fluoride at the Oregon State Hospital at Salem, Ore., resulted in the highest morbidity and mortality thus far reported in the medical literature from this particular poison. There were 263 cases, of which 47 terminated fatally following a meal of scrambled eggs. The identity of the poison was not established until approximately twenty-two hours had elapsed except that preliminary tests performed by Drs. F. R. Menne, N. A. David and H. J. Sears of the University of Oregon Medical School indicated a virulent poison in the stomach of some of the victims and in the scrambled eggs. When toxicologic examination revealed the presence of sodium fluoride, it was apparent that roach powder had been placed in the scrambled eggs served at the evening meal. Subsequent investigation disclosed that a patient helper had unwittingly mistaken roach powder for powdered milk and had added approximately 17 pounds of the compound to a 10 gallon mixture of scrambled eggs. Fortunately the eggs were not generally distributed throughout the hospital but were served to only five of the working wards.

CLINICAL FINDINGS

The food was rejected by many of the patients because of a salty or soapy taste, while others complained of numbness of the mouth. Extremely severe nausea, vomiting and diarrhea occurred abruptly and at times simultaneously, and blood was noted in the vomitus and stools in many instances. Soon after the meal there were complaints of abdominal burning and cramplike pains. General collapse developed in most instances but at variable periods of time, apparently depending on the concentration of the poison. This was characterized by pallor, weakness, absent or thready pulse, shallow unlabored respiration, weak heart tones, wet cold skin, cyanosis and equally dilated pupils. When this picture was pronounced death almost invariably occurred. Local or generalized urticaria occurred in some instances while in others there was a thick, mucoid discharge from the mouth and nose. When death was delayed, and in some cases in which recovery occurred, there were paralysis of the muscles of deglutition, carpopedal spasm and spasm of the extremities. Convulsions and abdominal tenderness and rigidity were absent. In the majority of cases death occurred between two and four hours after ingestion of the food, although in a few instances death was delayed for eighteen or twenty hours.

With the explosive occurrence of 263 acute and violent cases, amid inadequate surroundings, treatment was of necessity on an empiric basis. A teaspoon of salt and sodium bicarbonate in a glass of water served as a gastric lavage. Shock was combated with respiratory and cardiac stimulants, and the following were used alone or in combination, depending on the individual case: nikethamide, epinephrine, caffeine with sodium benzoate, neosynephrin subcutaneously, 50 per cent dextrose intravenously, whisky by mouth and external heat. Magnesium sulfate was used as a purge and was probably of more specific value than was appreciated at the time.

Through the office of the district attorney and the coroner examination of 6 bodies was authorized, and on 3 of these a complete autopsy was performed. The essential findings are grouped as follows: In the most acute deaths the mucosa of the stomach, duodenum and first portion of the jejunum was edematous and hyperemic. The stomach contents were mucinous and contained large amounts of undigested egg. The colon was empty except for portions of undigested food, indicating the ferocity of the diarrhea; the mucosa here was unchanged. There was a general increased wetness and acute congestion of the abdominal viscera, and the liver and kidneys were swollen. The lungs were ballooned at their edges, with occasional interlobar petechial hemorrhages. There was no aspiration of the stomach contents. The heart showed decided dilatation of the right chambers, which contained fluid blood. The brain revealed only slight edema and hyperemia. When death was delayed the only other changes consisted of petechial hemorrhages of the gastric and duodenal mucosa. In no case was increased fat noted in the liver. Microscopic examination of the various organs confirmed these gross findings.

TOXICOLOGIC EXAMINATION

The cooked eggs contained from 3.2 per cent to 13 per cent sodium fluoride in analyses made on different portions of the same sample, indicating a spotted distribution of the poison. One patient dying fifteen minutes after ingestion of the eggs showed an estimated 17.2 Gm. of sodium fluoride present in the stomach contents; when death occurred one hour after ingestion of the eggs an estimated 3.7 Gm. of sodium fluoride remained in the stomach contents; when death was delayed four hours, the stomach was empty but the entire liver contained an estimated 0.85 Gm. of sodium fluoride and both kidneys an estimated 0.21 Gm. of sodium fluoride; when death was delayed for eighteen hours only 0.18 Gm. of sodium fluoride was found in the stomach contents. In all cases fluorides were easily identified by the etch test on glass from the ash in 10 Gm. samples of kidney and liver and by the presence of calcium fluoride bands on spectrographic analysis.

Roach powder contains anywhere from 30 to 90 per cent sodium fluoride, depending on the manufacturer. The powder in question contained 90 per cent of the commercial salt. Sodium fluoride is a white powder with a salty, alkaline taste, odorless, very soluble in water and appearing grossly similar to sodium bicarbonate or flour. The fatal dose is given by Baldwin [1] as from 5 to 10 Gm. for human beings. This figure is the one most commonly accepted. Thienes [2] states that 0.25 Gm. has caused nausea and 4 Gm. has caused death.

The majority of reported poisonings by sodium fluoride have been mass poisonings due to the use of the compound in place of sodium bicarbonate, flour

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1. Baldwin, H. D.: J. Am. Chem. Soc. **21**: 517, 1899.
2. Thienes, C. H.: Clinical Toxicology, Philadelphia, Lea & Febiger, 1940, p. 167.

or epsom salt (magnesium sulfate). In Pittsburgh on Nov. 11, 1940 sodium fluoride was mistaken for flour and added to pancakes at a Salvation Army service center, resulting in the poisoning of 40 persons and 12 deaths.[3] Wirthlin [4] reported a death by suicide following the ingestion of ½ pound of sodium fluoride in two hours. Geiger [5] reported 3 deaths when sodium fluoride was mixed with sodium bicarbonate, and in the same outbreak Carr [6] reported 3 additional fatalities and 2 suicides. Bell [7] reported the recovery of 1 patient who was seriously stricken after ingesting an estimated 5½ grains (0.33 Gm.) of sodium fluoride. Maletz [8] reported 1 case of fatal poisoning and 1 recovery, in which the amount of fluoride taken was small. Sharkey and Simpson [9] reported 1 case of fatal and 7 of nonfatal poisoning in which sodium fluoride was mistaken for epsom salt. Their paper also contains an excellent review of the literature up to that time.

COMMENT

The medical and nursing staff of the hospital found themselves confronted with an enormous task in caring for such a number of acutely ill patients. The difficulty was further aggravated by the obscure nature of the poison, which excluded the use of a specific antidote. It is interesting to speculate as to the reasons underlying the severity of the reaction in the different cases. On the basis of the toxicologic examination it is apparent that the sodium fluoride was unevenly mixed in the eggs, with consequent variation in the concentration. It was also apparent that the older patients, because of their generally poor physical condition, withstood the effects of the poison less readily than younger ones. The amount of food eaten naturally varied considerably, but it appeared that the more demented patients, who would be less discriminating in their food habits, suffered more than others. When there was prompt and copious vomiting, the effects were less severe.

Roach powder is commonly used around institutions, and our experience indicates that sodium fluoride is a more potent poison than has been generally recognized. It would seem that the same precautions concerning the packaging, labeling and distribution of this compound should be taken as with other well known poisons. That this danger is not apparent is indicated by the absence of a poison label on the container and failure of the manufacturer to color this substance so that it would be less easily mistaken for certain food substances to which it bears a close resemblance.

3. Food and Drug Review, January 1941.
4. Wirthlin, M. R.: U. S. Nav. M. Bull. **35**: 255 (April) 1937.
5. Geiger, J. C.: California & West. Med **44**: 81 (Feb) 1936.
6. Carr, J. L.: California & West. Med. **44**: 84 (Feb.) 1936.
7. Bell, R. D.: Brit. M. J. **1**: 886 (May 2) 1936.
8. Maletz, Leo: New England J. Med. **213**: 370 (Aug. 22) 1935.
9. Sharkey, T. P., and Simpson, W. M.: Accidental Sodium Fluoride Poisoning, J. A. M. A. **100**: 97 (Jan. 14) 1912.

Medical Slang.—There is not sufficient distinction in the medical mind between the spoken and the written word. Certain medical slang is highly descriptive and emotionally and intellectually suited to the purpose of professional discussion; when, however, such idiom is transferred to print it produces a different effect. There are too many examples of words and phrases incorporated and accepted into the medical press which offend against rules of style and grammar. Textbooks on 'the acute abdomen' are numerous: disease may be acute, but an abdomen, never. Exactness and dignity are the two essential qualities of good medical expression. The surgeon who 'laparotomises' his patient and the physician who diagnoses 'P. T. B.' achieve neither.—The Decay of Medical Language, editorial, *New Zealand M. J.* **41**:236 (Dec.) 1942.

THE ORAL USE OF SULFATHIAZOLE AS A PROPHYLAXIS FOR GONORRHEA

PRELIMINARY REPORT

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Our purpose in this study is to determine whether the prophylactic administration of sulfathiazole prevents the development of gonorrhea. The existence of an inordinately high gonorrhea rate among certain troops makes the development of an easily administered chemical prophylaxis particularly important. The following incomplete experimental data are published as a preliminary report because of the encouraging results already achieved.

Venereal Disease Rates in Control and Sulfathiazole Test Group at Fort Benning
(All rates per thousand per annum)

Month	Number in Group	Gonorrhea Cases	Gonorrhea Rate	Chancroid Cases	Chancroid Rate	Syphilis Cases	Syphilis Rate	Total Cases	Total Rate
1. Control Group (No Sulfathiazole)									
March	3,771	68	216	38	121	15	48	121	385
April	1,883	51	325	19	121	13	83	83	529
May	3,975	48	145	22	66	17	51	87	262
June	4,101	69	176	15	44	13	38	88	258
July	4,395	80	218	30	82	39	106	149	406
August	5,100	63	148	10	24	25	59	98	231
September	5,069	43	102	13	31	16	38	72	170
2. Test Group, Including All "Failures"									
March	1,200	18	180	6	60	5	50	29	290
April	1,560	28	216	15	115	4	31	47	362
May	1,565	5	38	7	54	3	23	15	115
June	1,555	5	38	2	15	8	62	15	115
July	1,440	4	33	6	50	7	58	17	141
August	1,200	7	70	3	30	1	10	11	110
September	1,223	1	10	4	39	4	39	9	88
3. Test Group, Omitting "Failures" Not Under the Sulfathiazole Medication as Prescribed									
March	1,200	18	180	7	60	5	50	29	290
April	1,560	28	216	15	115	4	31	47	362
May	1,565	1	8	1	8	3	23	5	39
June	1,555	1	8	0	0	8	62	9	70
July	1,440	1	8	1	8	7	58	9	74
August	1,200	1	10	1	10	1	10	3	30
September	1,223	0	0	0	0	4	39	4	39

Joses [1] and Kline and Ryan [2] have published articles on the subject of sulfathiazole prophylaxis. In both studies sulfathiazole was given in divided doses after exposure. In the former study gonorrhea did not develop in any of 350 men who received sulfathiazole; in the latter, of 1,000 who received the drug 3 developed gonorrhea.

METHOD OF STUDY

The test group consisted of a company of approximately 1,400 Negroes. The control group consisted of approximately 4,000 Negro troops from the same post.

The method of administering sulfathiazole was as follows: All soldiers in the test group were required to "sign out" and "sign in" through the noncommissioned officer in charge of quarters. On signing out, each soldier was given 2 Gm. of sulfathiazole and was observed to swallow it in the presence of the noncommissioned officer. During the first few weeks of the study all soldiers who did not have in their possession a copy of form 77 MD (station prophylaxis slip) on signing in were given 2 more Gm. of sulfathiazole and an additional 2 Gm. the following morning under the

Captain Loveless is venereal disease control officer and Colonel Denton is post surgeon at Fort Benning, Georgia.

1. Joses, Maurice: Sulfathiazole Prophylaxis of Gonorrhea and Chancroid, U. S. Nav. M. Bull. **40**:113 (Jan.) 1942.
2. Kline, E. F., and Ryan, T. C.: Sulfathiazole Prophylaxis in Prevention of Gonococcus Infections, U. S. Nav. M. Bull. **40**: 360 (April) 1942.

same strict supervision. Later this exemption on the basis of station prophylaxis was discontinued and sulfathiazole was administered to all. Early in the course of the experiment restriction to the camp for a period of one week of those who received 6 Gm. was attempted in order to prevent overdosage. This restriction was later relaxed. The cost of this prophylaxis has been about 10 cents per soldier monthly.

RESULTS

The accompanying table presents the rates for gonorrhea, chancroid and syphilis of the test and control group from March through September. The administration of sulfathiazole to the test group was started on May 1.

It will be noted that in the control group there is no distinct trend of the rates for gonorrhea or syphilis. The rate for chancroid is considerably lower during the last four months of the total period.

Section 2 of the table includes all cases of venereal disease diagnosed during the period March through September. The decline in the gonorrhea rate is evident. Chancroid shows no clearcut change, and syphilis remains constant except during the month of August, when a sharp decline is noted. Section 3 excludes those cases not under the influence of sulfathiazole when exposure occurred—men who were exposed away from the post while on overnight leave or furlough and who could therefore not obtain the additional sulfathiazole that would have been given could they have returned to the post. These cases are counted in section 2 as they were members of the group under study but are omitted from section 3 because of their failure to carry out the provisions of the study. One gonorrhea failure was noted in each of the months May, June, July and August. The situation is similar with chancroid infection. When sulfathiazole was taken according to the plan of the experiment, gonorrhea and chancroid almost entirely disappeared. Syphilis was unaffected, although the low rate noted in August is not explained.

SULFATHIAZOLE REACTIONS

No toxic or allergic reactions in the test group other than occasional complaints of mild nausea have been observed. No case has been hospitalized nor have any days been lost from duty as a result of the sulfathiazole administration. The possibility of sulfonamide sensitization has been considered, but there has not yet been an opportunity to investigate this problem. However, no indication of sensitivity has been observed thus far.

COMMENT

It is recognized that this presentation is preliminary in nature. However, it is believed that sufficient evidence is presented to prove that sulfathiazole prophylaxis will prevent gonorrhea and chancroid. It is our opinion that, under certain conditions and in a final form yet to be developed, prophylactic sulfathiazole administration would produce a remarkable decline in gonorrhea and chancroid in the Army. It is admitted that certain dangers are involved in administering this drug, particularly on a large scale, and that the answer to certain questions has not yet been determined. In view of the magnitude of the venereal disease problem and its effect on man days, we believe that the risks are justified.

This experiment is being continued in an effort to simplify the administration of the drug and to obtain further corroborative data. Although no untoward reactions have been observed, no data are as yet available as to possible sensitization or other ill effects consequent on repeated administration of small doses. The study group is being observed carefully for such evidence. Until such data are available the study is not being extended, nor is it felt advisable that such measures be made routine practice.

SUMMARY [3]

1. A company of approximately 1,400 Negro troops was given sulfathiazole prophylaxis of 2 Gm. before leaving the fort on pass. Those taking station prophylaxis received no further drug. All others received 4 additional Gm., 2 on returning to the fort and 2 the next morning.

2. In this company there has occurred a phenomenal disappearance of gonorrhea and chancroid. Excluding the "failures" not under the influence of the drug at the time of exposure, the gonorrhea rate dropped to a level of 8 per thousand yearly as compared with 171 per thousand in the control group, and the chancroid rate dropped to 6 as compared with 52.

CONCLUSIONS

1. Sulfathiazole administered orally appears to be an effective preventive against gonorrhea and chancroid.
2. Its administration in this experimental group has not been attended by serious reactions.
3. Sufficient evidence has been obtained to justify further extensive study of this problem.

Clinical Notes, Suggestions and New Instruments

Q FEVER

F. Eugene Zemp, M.D., Columbia, S. C.

The present war with its rapid means of transportation has focused our attention on diseases of far distant lands, some of which have never occurred in this country. The typhus fever group is of particular interest, and one should be ever on the alert for its appearance. Megaw's [1] classification is based on the insect vector and is divided into the epidemic and nonepidemic forms. The epidemic form is true typhus, the louse being the insect vector. Under the nonepidemic form are classified flea typhus or Brill's disease; tick typhus, which includes Rocky Mountain spotted fever; Montana tick fever and others, and mite typhus, sometimes called Japanese river fever or tropical typhus. In 1935 a new fever entity was first noted among the meat workers in Brisbane, Queensland, Australia. The cases reported were studied by Derrick [2] and Burnet and Freeman,[3] who made their report in 1937. They described its clinical course and identified the causative organism as Rickettsia burneti. Although it has a certain resemblance to typhus fever, Q fever differs in that its clinical course is variable, there is no characteristic rash and the Weil-Felix reaction is negative. Recent investigations by Kendall,[4] Bowen,[5] Cox,[6] Derrick,[2]

3. Since this article was written, data have been collected on 20 soldiers from the test group who were subsequently admitted to the Station Hospital for various illnesses. All had previously received sulfathiazole as a prophylaxis. Over an average period of sixty-five days, each had taken an average of 45 Gm. of this drug. In the hospital, 17 patients received an average therapeutic total of 24 Gm. The individual prophylactic total ranged from 4 to 100 Gm. and the therapeutic total ranged from 5 to 52 Gm. Three of these 20 were treated with sulfathiazole powder or ointment. In this entire group a therapeutic response to the drug was satisfactory and there have been no reactions.

1. Manson-Bahr, Phillip H.: Manson's Tropical Diseases, Baltimore, William Wood & Company, 1942, pp. 274-275.

2. Derrick, E. H.: Q Fever, a New Fever Entity: Clinical Features, Diagnosis and Laboratory Investigations, M. J. Australia **2**: 281 (Aug. 21) 1937.

3. Burnet, F. M., and Freeman, Mavis: Experimental Studies on the Virus of Q Fever, M. J. Australia **2**: 299-306 (Aug. 21) 1937.

4. Kendall, A. I.: Australian Q Fever, Montana Tick Virus and Pneumonitis, Quart. Bull. Northwestern University M. School **15**: 110-113, 1941.

5. Bowen, Albert: Acute Influenza Pneumonitis, Am. J. Roentgenol. **34**: 168 (Aug.) 1935.

6. Cox, H. R.: Rickettsia Diaporica and American Q Fever, Am. J. Trop. Med. **20**: 463-469 (July) 1940.

Burnet and Freeman,[7] Dyer, Topping and Bengtson,[8] Hornibrook and Nelson,[9] and Dyer [10] have shown a close relationship between Montana tick fever, pneumonitis and Australian and American Q fever. Etiologically they all agree that the rickettsial virus is the responsible organism and that the clinical variation may be due to different strains. Cox [11] suggested diaporica as the species of Rickettsia in American Q fever whereas it is the burneti in Australian Q fever. The insect vector in the former is Dermacentor andersoni [12] and in the latter Hemaphysalis humerosa.[7]

The bacteriologic, epidemiologic, cultural and serologic aspects of this rickettsial virus have been studied by Derrick,[2] Cox,[13] Dyer,[14] Davis and Cox,[12] Parker and Davis,[15] and Bengtson.[16] The pathologic effects on the various organs of the mouse, guinea pig, rabbit and monkey have been demonstrated by Burnet and Freeman,[3] Lillie, Perrin and Armstrong,[17] Perrin and Bengtson,[18] and Lillie.[19] Dyer [10] has shown a close similarity between Australian Q fever and a disease caused by an infectious agent isolated from ticks in Montana and also reported a case [14] of human infection in a laboratory worker. Burnet and Freeman [7] made a similar study and concluded that the virus of each of these diseases should be included in the same species. Hesdorffer and Duffalo [20] reported a probable case of American Q fever with a definite pneumonitis. A number of cases of atypical pneumonitis have been reported in which a serologic test was positive for the rickettsial virus. The clinical course of Q fever is variable, which is due in all probability to the various strains of the rickettsial virus. Until the various strains have been properly identified, it seems wise to separate the cases of Q fever with pneumonitis from those in which the clinical course is that of a true fever.

REPORT OF CASE

J. A., a white girl aged 18 whose family history was negative and whose only illness besides the usual childhood diseases was acute catarrhal jaundice in November 1941, had the onset of her present illness one week after returning from the mountainous country of western North Carolina, where she had visited in the country, drunk water from many sources and been on a number of hikes. Three days before the onset there was general malaise, loss of appetite, constipation and an unwell feeling. The onset was dramatic and was ushered in with a hard chill and a temperature of 105 F. on July 25, 1942. After three days of chills, fever, headache and generalized aching the patient was admitted to the Columbia Hospital. On admission the physical examination was entirely negative except for slight generalized tenderness in the lower part of the abdomen. Repeated examinations continued to be negative. A slight cough developed.

The fever together with the chills continued daily for two weeks. The chills were rather severe; during them she shook as if riding a rocking horse. The spleen was never palpable. A mild neuritis developed in the legs and feet and they became quite sensitive to touch. During the first week the highest daily temperature ranged from 105 to 105.8 F. and never dropped to normal during the day. The temperature continued to reach 104 to 105.8 in the second week, 102 to 105.4 in the third week and 102.4 to 104.4 in the fourth week, dropping to normal once during the day. It gradually fell and became normal on the forty-sixth day, five days after she was given a blood transfusion. The pulse remained moderately slow and the lungs remained clear during the entire illness.

The laboratory findings were as follows: July 28, the hemoglobin content was 70 per cent, red blood cell count 3,500,000, white blood cell count 9,650 and the differential count: polymorphonuclear leukocytes 68 per cent and lymphocytes 19 per cent. July 29, the white blood cells numbered 9,000, with polymorphonuclear leukocytes 78 per cent, lymphocytes 19 per cent, transitionals 3 per cent. August 6, hemoglobin was 71 per cent, red blood cell count 3,600,000, white blood cell count 7,100, with polymorphonuclear leukocytes 75 per cent, lymphocytes 25 per cent. August 17, hemoglobin was 65 per cent, red blood cell count 3,610,000, white blood cell count 5,200, with polymorphonuclear leukocytes 70 per cent and lymphocytes 27 per cent. August 20, hemoglobin was 67 per cent, red blood cell count 3,300,000, polymorphonuclear leukocytes 60 per cent and lymphocytes 40 per cent. The urinalysis showed a specific gravity of 1.016, was negative for sugar and showed 1 plus albumin and a few pus cells in the microscopic study. Repeated urinalyses were negative. August 11 a tuberculin test was negative. August 7, the stool culture was negative for the typhoid group. Blood cultures were negative on repeated examinations. Agglutination tests were as follows: July 31, typhoid positive in a dilution of 1:25, paratyphoid negative, Brucella abortus negative, Weil-Felix reaction positive in dilutions of 1:25 and 1:50. These tests were repeated on August 4 and 8 and all gave entirely negative results. A sample of the blood was sent to the United States Public Health Laboratory for examination, stress being laid on the various strains of the typhus group. The report on August 22 was as follows: agglutination for Bacillus proteus X 19 negative, Pasteurella tularensis negative, Brucella abortus negative, and Salmonella paratyphi B positive in a dilution of 1:20. Complement fixation for Rocky Mountain spotted fever negative; endemic typhus negative; Q fever positive in a dilution of 1:4. Roentgenologic examination of the lungs was negative on August 25.

COMMENT

A tentative diagnosis of Q fever was made on the eleventh day based on the following findings: (1) Clinically the condition belonged in the typhus group; (2) there was an absence of rash; (3) there was a negative Weil-Felix reaction and also a negative reaction for other specific fevers. On the twenty-fifth day of the illness the complement fixation test was positive for Q fever.

The illness was most severe during the first two weeks; at no time was the patient critically ill. Toward the latter part of the illness the devitalizing effect became apparent and a blood transfusion was given. Quinine was administered during the first three days with no effect. This was followed by moderately large doses of sulfadiazine for five days with no effect. The treatment then became one for fevers of long duration.

7. Burnet, F. M., and Freeman, Mavis: Comparative Study of Rickettsial Strains from an Infection of Ticks in Montana (United States of America) and from Q Fever, M. J. Australia **2:** 887 (Dec. 16) 1939.

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11. Cox, H. R. Studies of a Filter-Passing Infectious Agent Isolated from Ticks: Further Attempts at Cultivation in Cell Free Media: Suggested Classification, Pub. Health Rep. **54:** 1882 (Oct. 8) 1937.

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17. Lillie, R. D.; Perrin, T. L., and Armstrong, C.: An Institutional Outbreak of Pneumonitis: III. Histopathology in Man and Rhesus Monkeys in the Pneumonitis Due to the Virus of Q Fever, Pub. Health Rep. **50:** 149-155 (Jan. 24) 1941.

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20. Hesdorffer, M. B., and Duffalo, J. A.: American Q Fever, J. A. M. A. **116:** 1901-1902 (April 26) 1941.

CONCLUSION

1. One should think of Q fever when clinically the disease resembles the typhus fever group, there is no rash and the Weil-Felix reaction is negative.

2. A constant alert should be maintained throughout the war for fevers and diseases of the Orient.

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FAMILIAL POLYPOSIS OF THE COLON

LIEUTENANT (jg) MORRIS T. FRIEDELL (MC), U. S. N. R.
and
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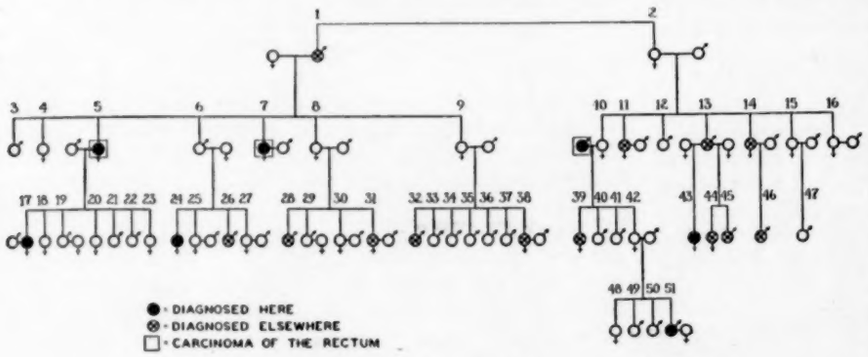
ROCHESTER, MINN.

Harrison Cripps [1] is credited with recording the first observation that two members of the same family might have polyps of the rectum. Since this report, many isolated family histories have been recorded. Some of these reports have consisted of two or three members of one generation or two or three generations who have had polyps of the colon. Such reports are of limited value. The larger families, such as the one reported herein and the one reported by Jüngling,[2] also are of limited value so far as human genetics is concerned. These reports are of limited value because family histories are notoriously inaccurate and also because not enough information concerning the general health of the family can be obtained.

The great number of members of a family like the one recorded herein and the one studied by Jüngling definitely indicates that in some families there is a hereditary factor so far as polyps of the colon are epithelial proliferations which are potential carcinomas. Such polyps probably all will be carcinomas if the patient who has them lives long enough. Therefore, carcinoma of the rectum and colon among those who have polyps is certain to occur in time. But one must not be confused; carcinoma arising in polyps of the colon is secondary to the polyps and is not a part of the hereditary factor.



Family tree showing incidence of polyposis of the colon.

As to the hereditary factor of disseminated polyposis of the colon, when it is present, one can say that the disease is transmitted by both males and females. This is shown in the family tree. Both males and females suffer from the disease. The inheritance has been traced through several generations. At this point it must be emphasized that about half of the patients with disseminated polyposis of the colon who have been seen at the Mayo Clinic do not have this hereditary factor. Their family histories are not even suggestive that any other members of their families have or have had polyps of the rectum and colon.

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This article has been released for publication by the Division of Publications of the Bureau of Medicine and Surgery of the U. S. Navy. The opinions and views set forth in this article are those of the writer and are not to be considered as reflecting the policies of the Navy Department.

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REPORT OF CASES

CASE 1.—A man aged 61 registered at the clinic in September 1921. He had had melena for two years and for six months had had alternating diarrhea and constipation. Proctoscopic examination established the diagnosis of rectal carcinoma. There were numerous polyps above and below the lesion; these polyps extended beyond the range of the proctoscope.

CASE 2.—A woman aged 56 registered at the clinic in March 1932. For three months she had had pains in the lower part of the abdomen which were relieved by the passage of stool and flatus. Roentgenologic and proctoscopic studies revealed a carcinoma of the rectum and multiple polyposis of the colon. The adenocarcinoma was of grade 4 malignancy (Broders). The patient died of hepatic metastasis subsequent to removal of the rectal lesion.

CASE 3.—A woman aged 27 registered at the clinic in April 1932. She had had frequent bloody stools for four years. Roentgenologic and proctoscopic studies revealed multiple polyposis of the colon.

CASE 4.—A woman aged 18 registered at the clinic in November 1934. For six months she had had four to six stools daily and had noticed gross melena for two months prior to her coming to the clinic. A diagnosis of multiple polyposis of the colon was made on the basis of proctoscopic and roentgen studies.

CASE 5.—A woman aged 61 registered at the clinic in August 1935. She had had rectal bleeding for twelve months. Proctoscopic studies revealed a carcinoma of the rectum and multiple polyps above and below the lesion.

CASE 6.—A woman aged 27 registered at the clinic in April 1932. She had had rectal bleeding for four years. Roentgenologic and proctoscopic studies revealed multiple polyposis of the colon.

CASE 7.—A woman aged 27 registered on May 31, 1935 complaining of weakness. Results of examination were negative except for evidence of secondary anemia. She returned in October 1935, at which time she complained of alternating diarrhea (three or four stools daily) and constipation. Proctoscopic examination revealed numerous tiny polyps in the rectosigmoid. This condition has persisted to the date of our report and has been verified by roentgenologic studies. In September 1937 appendectomy and the transcolonic removal of a polyp were performed. A diagnosis of grade 1 adenocarcinoma in an adenoma was made. In October 1940 ileosigmoidostomy was performed, and a polyp was removed from the transverse portion of the colon. This polyp also was found to contain portions of a low grade (grade 1) adenocarcinoma.

In the illustration is revealed such information concerning additional members of this family as was available to us. The family had originated in Germany, and both the brother and sister (cases 1 and 2) were born there. At the time of writing it was impossible to gain any further information from Germany concerning the family. There are approximately forty-nine descendants of the brother and sister. Of these, nineteen, or 39 per cent, had either multiple polyposis or a carcinoma of the large intestine. The disease was manifest in nine males and eleven females. Of the seven members examined at the clinic, two were males and five were females. Carcinoma of the rectum was present in three of these seven. Multiple polyposis of the colon was found in all the patients examined at the clinic.

SUMMARY

In about half the cases of multiple polyposis of the colon there is a definite hereditary tendency. This hereditary tendency does not produce any known genetic pattern. It is not sex linked and is neither a mendelian dominant nor a recessive. In half of the cases the family history is entirely negative for polyps or carcinoma of the colon.

Special Article

HANDBOOK OF NUTRITION: XXII

ADEQUACY OF AMERICAN DIETS

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These special articles on foods and nutrition have been prepared under the auspices of the Council on Foods and Nutrition. The opinions expressed are those of the authors and do not necessarily reflect the opinion of the Council. These articles will be published later as a Handbook of Nutrition.—ED.

A description of the diets of a whole population can never be simple. Food habits vary from place to place and from season to season. They differ from family to family too, reflecting economic circumstances and cultural backgrounds. Even within a single family group diets of individuals vary more than is generally realized. The latter point, preserved in legend by the Mother Goose rhyme about Jack Spratt and his wife, has recently been spelled out in terms of its nutritional significance by Canadian investigators. Their studies show that among low income groups food tends to be distributed inequitably among family members.[1] As a rule, the men—the breadwinners—appear to fare best relative to nutritional needs; women and older children, worst. When there is scarcely enough to go around, mothers tend to sacrifice for other family members. Even so, however, teen age children with their high nutritional requirements often get less than enough.

Information regarding dietary levels in this country is available from two types of statistics. On the one hand are the United States Department of Agriculture's figures showing average quantities of various foods or groups of food disappearing in consumptive channels and long time trends in our nation's over-all consumption. These estimates are constructed from available data on production, imports, exports and changes in quantities in reserve (stocks) as of the beginning and the end of each year. On the other hand, there are data from numerous family dietary studies which throw much light on the extent to which various groups of the population share in these national food supplies.

TRENDS IN FOOD CONSUMPTION IN THE UNITED STATES

Per capita food supplies in this country are bountiful compared with those of most other parts of the world. The per capita volume has remained fairly constant during the last three decades, but within the total the relative importance of various foods has shifted.[2] As charts 1 to 7 show, there has been a phenomenal rise in the consumption of sugar and citrus fruits, and an upward trend in the consumption of dairy products and fruits and vegetables on the whole. Paralleling these increases, there has been a decline in the consumption of potatoes, meats and grain products. From the standpoint of nutrition, certain of these trends in food consumption have enriched the diets of American people while others have impoverished them. On the credit side, for example, is the increase in consumption of dairy products, fruits and succulent vegetables; on the debit side, the increase in consumption of refined sugar.

These shifts in consumption have not occurred to the same extent among all population groups. According to dietary studies made during the period 1885 to 1937,[3] the decline in the consumption of grain products by village and city families has been greater among those with comparatively low food expenditures ($1.25 to $1.87 a week per person, 1935 retail food price levels) than among those with average and higher than average food expenditures. Among families spending less than average amounts for food, meat consumption fell to a low level in 1915-1924 and since that period has increased relatively little. In contrast, among families

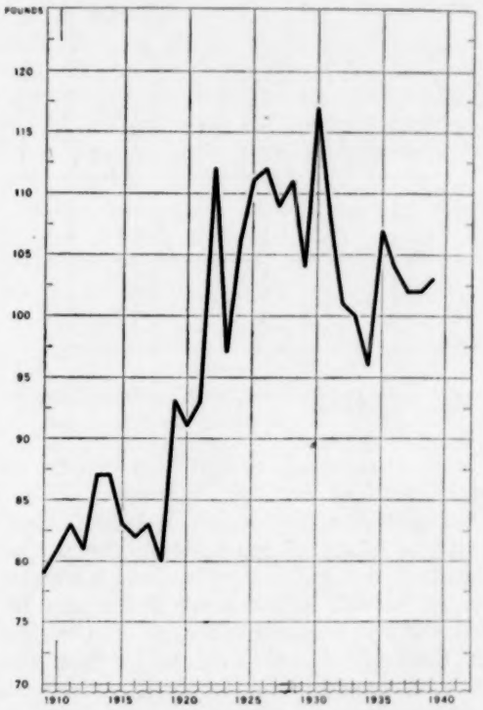

Chart 1.—Per capita consumption of cane and beet sugar, raw basis, in the United States, 1909-1939.

spending more than average amounts for food, meat consumption declined relatively more in the decade 1915-1924 but since that period has increased considerably. The rate of increase in the consumption of milk and leafy green vegetables during the last fifty years has been of about the same order of magnitude among all expenditure groups, whereas the relative increase in the consumption of vitamin C rich fruits has been more striking at lower than at higher food spending levels.

On a per capita basis, the nutritive value of the aggregate assortment of uncooked food materials estimated as delivered to the nation's kitchens during the two periods 1920-1924 and 1936-1940 is compared in certain respects with the dietary recommendations announced at the 1941 National Nutrition Conference for Defense by the National Research Council's Food and Nutrition

From the Bureau of Home Economics, U. S. Department of Agriculture.

1. McHenry, E. W.: Nutrition in Canada, Canad. Pub. Health J. **30**: 431-434 (Sept.) 1939. Hunter, George, and Pett, L. B.: A Dietary Survey in Edmonton, ibid. **32**: 259-265 (May) 1941.

2. Consumption of Agricultural Products, mimeographed releases, March, August and December, United States Department of Agriculture, Bureau of Agricultural Economics, 1941.

3. Stiebeling, Hazel K., and Coons, Callie M.: Present-Day Diets in the United States, in Food and Life, Yearbook of Agriculture, 1939, Washington, D. C., Government Printing Office, 1940.

Board [4] (table 1). It would appear that diets in this country could meet the recommendations for nutrients listed except in the case of calcium, riboflavin and thiamine (on a per hundred calory basis), provided the food was distributed equitably among the population.

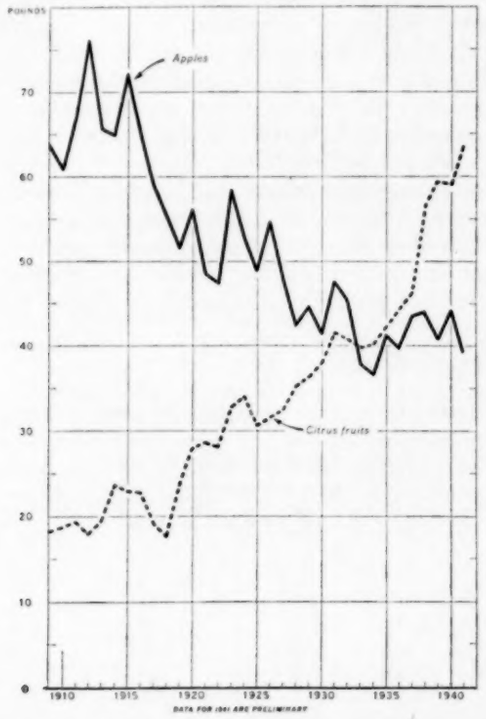

Chart 2.—Per capita consumption of fresh apples and citrus fruits in the United States, 1909-1941.

The figures presented on nutritive content of our food supply tend to be high, however. They refer to food brought into the kitchen and take insufficient account of the losses of nutrients in the preparation of food and of the edible food waste. Only average quantities of inedible refuse were deducted. In contrast, the dietary recommendations of the National Research Council's board with which the nutritive values of food supplies are compared represent actual intake and do not make allowances for losses in cooking. Hence, the over-all picture drawn of dietary adequacy tends to be optimistic. Nevertheless, the differences between the two five year periods probably are reliable—little change in the nutritive value of diets with respect to food energy, protein, iron and most of the B vitamins but an upward trend in calcium, vitamin A value and ascorbic acid.

SOME FACTORS AFFECTING FOOD CONSUMPTION LEVELS

Averages for the country as a whole are useful chiefly as a background against which to discuss variations in consumption. The generous food supplies enjoyed by some families bring up national averages but confer no benefit on those having but meager resources. Dietary studies show that within a population families in the upper income classes tend to have a greater variety and abundance of food than their less prosperous neighbors. However, at each income level the larger the family the less ample the diet of each person tends to be. Furthermore, there are wide variations in nutritive quality of diets even among those having equal economic resources, owing to differences in managerial ability and knowledge and skill in food selection and preparation.

This section of the paper will be confined to variations in diet reflecting differences in income, family size and management practices, with some comparison of farm and nonfarm situations. These appear to be among the most significant, though by no means the only, factors affecting family dietary levels. Most of the illustrations are taken from reports of large scale dietary studies made by federal agencies in 1936.[5]

DIET IN RELATION TO INCOME

Comparatively little difference from one income class to another was found in 1936 in per capita consumption of grain products, of fats and, in villages and cities, of sugar. On farms there appeared to be some increase in sugar consumption as incomes rose. Both in villages and cities and on farms there were moderate increases in the consumption of milk, eggs and meat at successively higher income levels, with the rate of increase about the same for all of these groups of products. Of fruits and vegetables (other than potatoes and dried beans and peas) there was a decided increase in the quantities consumed as incomes went up. In general, however, the rate of increase in consumption accompanying successively higher incomes was greater in the lower ranges of the income scale—e. g., under $1,500 a year—than in the upper. Table 2 illustrates these points.

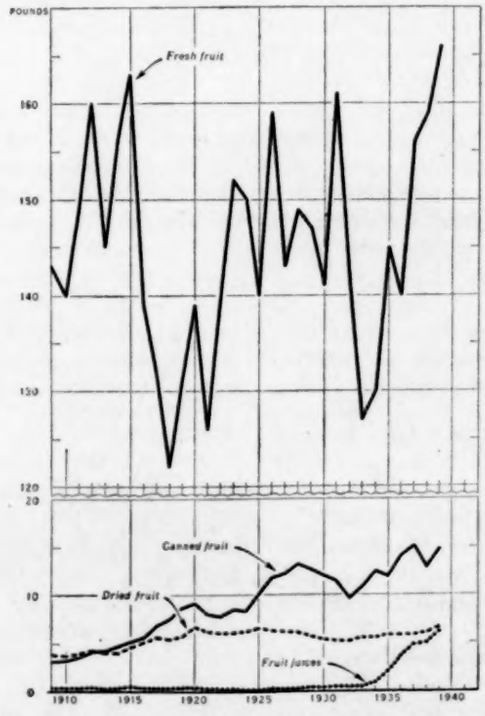

Chart 3.—Per capita consumption of fruits in the United States, 1909-1939.

As would be expected from such trends in consumption, diets of higher income groups tend to provide more protein, minerals and vitamins than those of low income groups, both absolutely and relatively to caloric value. The nutrients with respect to which diets of

4. Recommended Dietary Allowances, Committee on Food and Nutrition, National Research Council (May) 1941, Distributed by Federal Security Agency, Washington, D. C.

5. Family Expenditures in Selected Cities, 1935-36, Food, bulletin 648, vol. 2, United States Department of Labor, Bureau of Labor Statistics, 1940. Stiebeling and her associates.[6]

low and high income groups differ most widely are calcium, vitamin A, ascorbic acid and riboflavin.

Farm family diets differ from those of village and city dwellers in a number of respects. At comparable income levels farm groups consume per capita decidedly more of the important energy yielding foods—grain

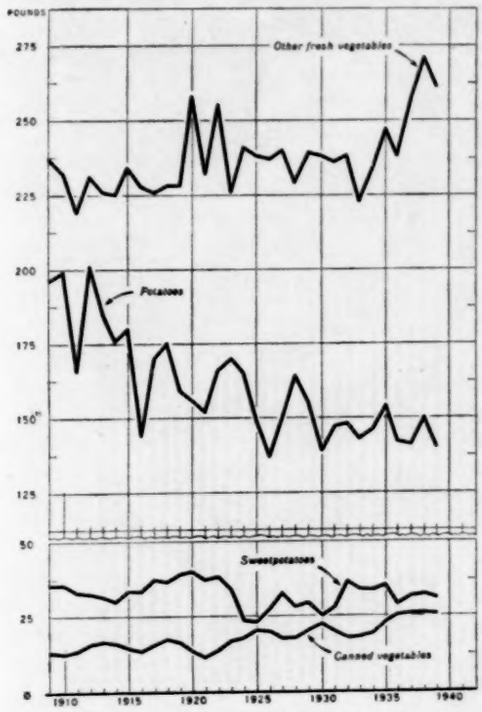

Chart 4.—Per capita consumption of vegetables in the United States, 1909-1939.

products, potatoes, mature beans and peas, sugars and fats, reflecting perhaps the heavier manual work, longer hours of toil and probably greater exposure to weather. Farm families consume more milk too. This is due, in part, to the fact that cows are milked on about three fourths of the farms in this country. Milk, then, is available for use by many families without direct cash outlay, and hence there are fewer economic barriers to its use. Furthermore, on farms there are more children per family than in urban areas. The census of 1940 showed that of every hundred persons on rural farms there were 32 persons under 15 years as contrasted with 22 in cities.

Farm families do not consume more than city groups of all kinds of food, however. In general, on a per capita basis, they tend to eat less meat, poultry and fish and less fruit and vegetables (other than potatoes and mature beans and peas).

Knowledge is still too incomplete to make possible a thoroughgoing appraisal of the nutritive adequacy of the diets of this nation. There is need for more information regarding both nutritive values of food as commonly eaten and human nutritional needs. But a provisional picture of the nutritive quality of diets of various population groups can come from the Bureau of Home Economics classification of family dietary records by their nutritive content.[6]

On the basis of these studies tentative estimates for 1936 indicate that about one fourth of the families in this country had diets that could be rated good, more than a third diets that could be considered fair and another third diets that should be classed as poor.[7] Recently the food records from these studies have been reclassified by separating from those formerly called good the ones that provided the several nutrients in the quantities recommended in 1941 by the National Research Council's Food and Nutrition Board. In this paper these diets of higher nutritive value have been labeled excellent. Considerably fewer than a fourth of the nation's families in 1936 would have been in the excellent diet category.

At successively higher incomes there generally is found an increasing proportion of families with diets that could be graded excellent. This follows from the larger quantities of milk, butter, meat, eggs, succulent vegetables and fresh fruits usually found in the more expensive diets. Chart 8 shows the proportion of families at different income levels with diets classed as excellent, fair or good. (The chart is based on food records obtained in 1936 from village and city families of parents and one or two children living in the North and West.) In the income class $500-$999, about 10 per cent had excellent diets; in the class $3,000 and over, 40 per cent.

Both on farms and in villages and cities, family diets vary in their richness with respect to different nutrients at any given level of food expenditure. Take, for example, diets of families in the North and West

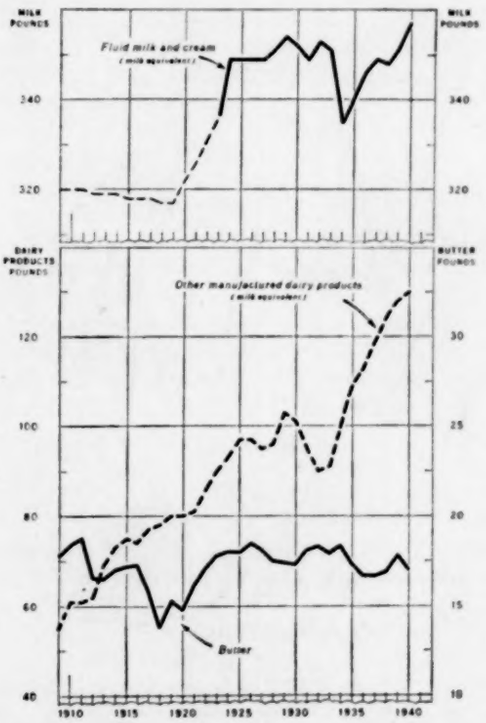

Chart 5.—Per capita consumption of dairy products in the United States, 1909-1940.

with food worth 30 to 40 cents a day per man—a not uncommon level of food expenditure in 1936. About 70 per cent of the village and city families in this population group had food that provided less calcium than that recommended by the Food and Nutrition

6. Stiebeling, Hazel K.: Monroe, Day; Coons, Callie M.; Phipard, Esther F., and Clark, Faith: Family Food Consumption and Dietary Levels, Five Regions, Farm Series, miscellaneous publication 405, United States Department of Agriculture, 1941. Stiebeling, Hazel K.; Monroe, Day; Phipard, Esther F.; Adelson, Sadye F., and Clark, Faith: Family Food Consumption and Dietary Levels, Five Regions, Urban and Village Series, Miscellaneous publication 452, United States Department of Agriculture, 1942.

7. Stiebeling, Hazel K.: Are We Well Fed? Miscellaneous publication 430, United States Department of Agriculture, 1941.

Board. Thirty per cent had less vitamin A, 70 per cent less ascorbic acid and 75 per cent less riboflavin. On farms, 30 per cent of families with food valued at 30 to 40 cents a day per man had diets providing less than the recommended quantities of calcium, 20 per cent less of vitamin A, 60 per cent less of ascorbic acid and 40 per cent less of riboflavin. (Because farm furnished food was valued at less than urban retail prices, a given sum represents a greater total volume of food among farm than among nonfarm groups; this fact as well as characteristic differences in diets, discussed earlier, accounts for the differences in nutritive value just noted.)

No one should assume that all families with diets falling short of desirable goals suffer from obvious nutritional deficiencies. But the diets of many such families are amenable to improvement, the degree dependent on the extent to which the diet falls short of optimum. Many diets that are "passable" in the sense that their nutritive quality is not questioned by the general public cannot be considered satisfactory by the scientist with an insight into the contributions that food at its best can make to the well-being of the individual and the race.

Food plays an important part in determining the composition of body tissues and the fluids that bathe the cells, forming what Sherman calls the "internal environment" in which life itself goes on.[8] Differences in this environment, many of which may be too small to be measured by present methods, definitely affect the plane on which physical and mental functioning

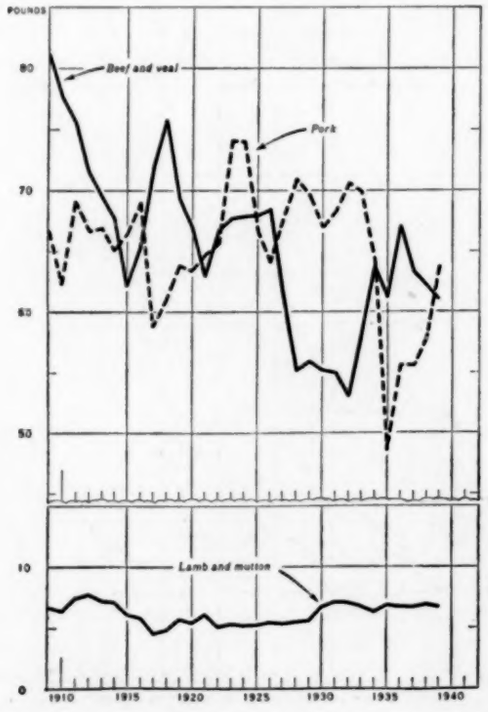

Chart 6.—Per capita consumption of meats in the United States, 1909-1939.

go on. As far as the immediate or long term well-being of a person can be improved through dietary betterment, that person falls short of being truly well fed.

A nationwide study has not been made of the prevalence of inferior nutritional status. Were one to measure the incidence of malnutrition in the United States merely by the number of death certificates that list malnutrition as a primary cause, the country would appear to be singularly free from this reproach. In recent years considerable progress has been made in developing technics for measuring nutritive status and

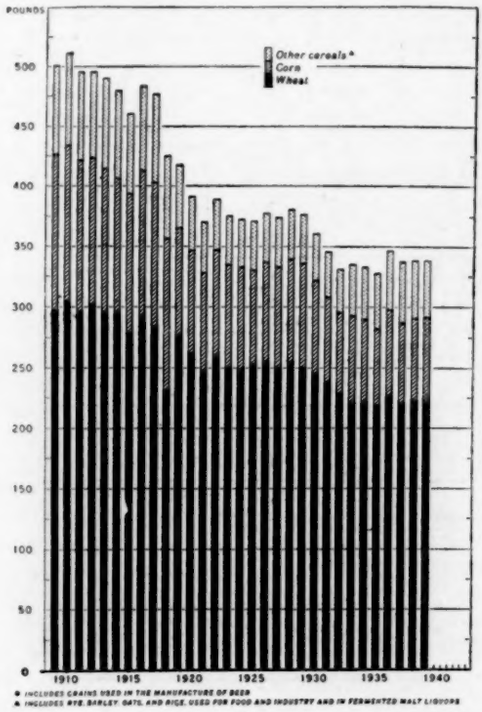

Chart 7.—Per capita consumption of wheat, corn and other cereals for food in the United States, 1909-1939. This includes grains used in the manufacture of beer. Other cereals include rye, barley, oats and rice used for food and industry and in fermented malt liquors.

revealing incipient malnutrition through biochemical or physiologic tests. Viewed broadly, the results of such studies support conclusions derived from an appraisal of diets of various population groups. To cite from but one—a study made recently in New York City comparing the nutritive status of children in a school serving chiefly families of the lower income group with those in a private school patronized by the more well to do:[9] In the low income group more than three fourths of the city children examined showed some stage of avitaminosis A, three fourths

8. Sherman, H. C.: Some Aspects of the Present Significance of Nutrition, J. Franklin Institute **231:** 305-321 (April) 1941.

9. Wiehl, Dorothy G., and Kruse, H. D.: Medical Evaluation of Nutritional Status: V. Prevalence of Deficiency Diseases in Their Subclinical State, Milbank Memorial Fund Quarterly **19:** 241-251 (July) 1941. Hunt, Eleanor P.: VI. Dark Adaptation of High School Children at Different Income Levels, ibid. **19:** 252-281 (July) 1941. Crane, Marian M.; Woods, P. W.; Waters, E. M., and Murphy, E. F.: A Study of Vitamin C Nutrition in a Group of School Children, Proc. Am. Inst. Nutrition, J. Nutrition **19:** 16 (June) 1940. Zayaz, Stella L.; Mack, Pauline Berry; Sprague, Phyllis K., and Bauman, A. W.: Nutritional Status of School Children in a Small Industrial Area, Child Development **11:** 1-25 (March) 1940. Milbank Memorial Fund, New York: The Changing Front of Health, Proc. 18th Ann. Conf. of Milbank Mem. Fund, 1940. Goldberger, Joseph; Wheeler, C. A.; Sydenstricker, Edgar, and King, W. J.: A Study of Endemic Pellagra in Some Cotton Mill Villages of South Carolina, United States Public Health Service Hygienic Laboratory, bulletin 153, 1929. Jenss, Rachel N.: Gain in Weight and Its Association with Ancestry and Economic Status, Human Biology **12:** 532-544 (Dec.) 1940. Sandels, Margaret R.; Cate, Helen D.; Wilkinson, Kathleen P., and Graves, L. J.: Follicular Conjunctivitis in School Children as an Expression of Vitamin A Deficiency, Am. J. Dis. Child. **62:** 101-114 (July) 1941. Milam, D. F., and Wilkins, W.: Plasma Vitamin C Levels in a Group of Children Before and After Dietetic Adjustment, Am. J. Trop. Med. **21:** 487-491 (May) 1941. Ebbs, J. H.; Tisdall, F. F., and Scott, W. A.: The Influence of Prenatal Diet on the Mother and Child, J. Nutrition **22:** 515-526 (Nov.) 1941. Kooser, J. H., and Blankenhorn, M. A.: Pellagra and the Public Health: A Dietary Survey of Kentucky Mountain Folk in Pellagrous and in Nonpellagrous Communities, J. A. M. A. **116:** 912-915 (March 8) 1941.

some degree of ariboflavinosis and one half plasma levels of ascorbic acid below 0.6 mg. per hundred cubic centimeters. In the high income group less than 3 per cent of the children showed mild ariboflavinosis and less than 6 per cent had ascorbic acid levels below 0.6 mg. per hundred cubic centimeters. Studies in other communities also show differences in nutritive status associated with dietary differences characteristic of various economic groups.

DIET IN RELATION TO SIZE OF FAMILY AND INCOME

The size of the family as well as its income determines how much money may be spent for the food of each person. For example, in small North Central cities in 1935-1936, families of two persons with incomes of $500 to $750 spent an average of about 11 cents a meal per person. When there were four in the family, it seemed to take incomes of $1,250 to $1,500 to afford approximately 11 cent meals; and with five or six in the family, incomes of $2,000 to $2,250.[10] While the larger sized family can effect some economies in the purchase of food as well as in its preparation, these economies seldom compensate for the progressive reductions in average food expenditures per person made within an income class by groups of families progressively larger in average size. In general, within an income class, the larger the family the less money is available for the food of each person and therefore the smaller the quantities of protective food bought for each person and the smaller the proportion of families with diets that can be classed as excellent.

DIET IN RELATION TO MANAGEMENT PRACTICES

At every level of money value of food, some families succeed in obtaining better diets than others. Granted that there are minimum expenditures below which fully adequate diets cannot be purchased and that increases in economic resources simplify the matter of obtaining satisfactory meals, it should be noted that even liberal

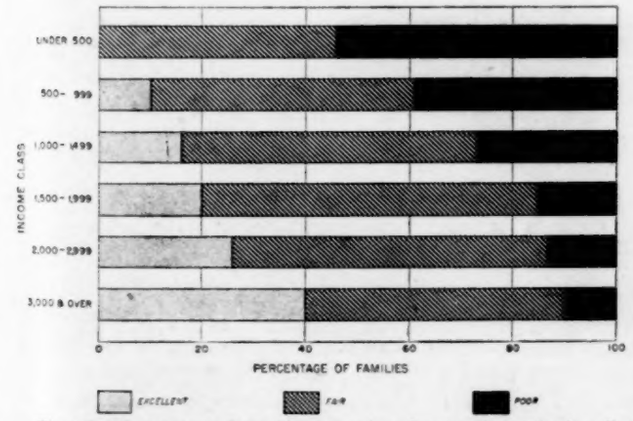

Chart 8.—Percentage of families in various income classes having diets of specified nutritive value. Dotted area indicates excellent; diagonal lines, fair; black, poor.

expenditures for food do not guarantee adequate diets. The homemaker who is a good manager and a good cook, who keeps up to date on food values and nutrition and applies this knowledge to her meal planning is likely to keep her family well fed. She knows how to buy food economically, to prepare it appetizingly and to serve it attractively. Without such skills and thrift in market and kitchen, a family may be aware of the importance of good nutrition but be unable to achieve it within the limits of its resources.

TABLE 1.—*Comparison of Nutritive Value of Food Estimated to Be Delivered to Nation's Kitchens in Two Five Year Periods with 1941 Dietary Recommendations of National Research Council's Food and Nutrition Board*

Nutrient	Nutritive Value per Capita per Day of Total Food Delivered to Kitchens * in 1929-1924	1936-1940	Per Capita Allowances † Based on 1941 Recommendations of National Research Council's Food and Nutrition Board
Food energy, calories	3,280	3,220	2,800
Protein, Gm.	84	82	66
Calcium, Gm.	0.77	0.82	0.9
Iron, mg.	14	14	12
Vitamin A value, international units	4,900	6,000	4,700
Riboflavin, mg.	1.7	1.8	2.3
Thiamine, total, mg.	1.7	1.7	1.6
Thiamine, per 100 calories, mg.	0.05	0.05	0.057
Ascorbic acid, mg.	80	90	70

* Computations based on unpublished data on consumption, supplied by O. V. Wells, Bureau of Agricultural Economics.

† Allowances suggested by the committee for seventeen age-sex-activity groups were weighted by the number of persons in each group as judged from the 1940 census of population.

Families in the higher income classes are somewhat more likely to buy satisfactory diets than those with more limited economic resources, even with the same expenditures for food. Not only do family members in the higher income classes usually have the advantage of a longer period of formal education, but they are the more likely to have radios and periodicals that bring up to date nutrition information, including facts regarding food requirements, food values and selection and wise food preparation. In addition, they are more likely to have the resources and storage space that are needed for buying food on a relatively large scale. The hand to mouth or meal by meal buying that many low income families resort to is, of course, a relatively expensive practice.

Farm families face additional problems in safeguarding the nutritive quality of diets. Most of them must raise a substantial share of their food supply if they are to be well fed. This requires labor. It requires land for food and feed and capital for investment in cows, pigs, chickens and farm equipment for production. It requires managerial ability in planning ahead for months and even years. It requires knowledge and skill for production and conservation of food. It requires courage when weather hazards or uncontrollable insect pests bring ruin to months of work. But well planned home food production programs enable farm families in many communities to enjoy diets of enhanced nutritive value.

A dollar's worth of milk, eggs, meats, vegetables and fruits from the farm (valued at prices farmers would pay if they bought them from neighbors) represents much higher returns in the nutritive essentials than a dollar's worth of staple products such as white

10. Brady, Dorothy S.; Monroe, Day; Phelps, Elizabeth, and Rainboth, Edith D.: Family Income and Expenditures, Five Regions: Part 2, Family Expenditures, Urban and Village Series, miscellaneous publication 396, United States Department of Agriculture, 1940.

flour, lard, sugar and coffee bought at the retail food store. Dietary studies among farm groups have shown that within a given income class, especially at the lower range of the income scale, adequacy of diet depends much less on the cash spent for food than on the quantity and variety of farm furnished food. Of course, highest returns for productive effort will come if planning—with human needs in mind—precedes the work of production. Agencies working to help farm families improve their living levels have placed increasing emphasis on planning ahead for the production and purchase of an adequate family food supply on a year round basis.

THE DIETARY SITUATION IN THE EARLY 1940'S AS COMPARED WITH THE MIDDLE 1930'S

There are reasons to believe that diets in the United States were better in 1940 and 1941 than five years earlier. Many families had higher incomes and could buy more and better food. With the acceleration of the defense program, many unemployed got jobs, WPA employed workers got better jobs, part time workers got full time employment, and some workers in defense industries got higher wages. Food prices were at a low level in 1940 and early 1941, so that despite the rises in the cost of food during the latter part of 1941 incomes of wage earners bought more food in both 1940 and 1941 than five years earlier. Indeed, it seems possible that, with their increased power to buy, at least one family out of every seven that had had poor diets in 1936 was able to obtain a fair or good diet in 1941.

Public interest in food has been on the increase for many years, thanks to the cumulative effect of sound educational programs. The National Nutrition Conference for Defense called by the President in 1941 highlighted the subject so that it has become the focal point for the research, teaching and action programs of an increasing number of persons, groups and agencies. Following this conference there has been renewed interest in establishing state and local nutrition committees whose function it is to integrate the work of all groups that impinge on the problem of better diets. This action has greatly stimulated the demand for simple educational material and effective methods to help families redirect their dietary habits and to revamp their management practices for the sake of improving dietary levels.

Public interest in nutrition also has led to growing concern regarding the nutritive value of common foods and the effect of processing on them. On the recommendation of the National Research Council's Food and Nutrition Board, millers and bakers began in 1941 to put on the market an "enriched" white flour and bread, thereby contributing to the thiamine, nicotinic acid and iron content of diets of families customarily consuming large quantities of these products. Canadian and British scientists and policy makers have recommended that flour in those countries be milled somewhat less highly, so that more of the vitamin and mineral content of the original berry is retained, thus securing without "restoration" a product much more nutritious than patent flour.

The manufacture of vitamin concentrates and the production of synthetic vitamins have been stepped up greatly during the last few years. These special foods can play a useful role in dietary reinforcement, although their indiscriminate use often wastes money which might better be spent for ordinary food.

Contributing directly to the dietary improvement in recent years are the several food distribution pro-

TABLE 2.—*Per Capita Food Consumption, Farm and Village and City Families in the United States: Estimate of Average Quantities Consumed of Eleven Food Groups per Year, by Income Class, 1935-1936* *

Income Class	Milk (or Its Equivalent), Quarts	Potatoes, Sweet Potatoes, Pounds	Dry Beans, Peas, Nuts, Pounds	Tomatoes, Citrus Fruits, Pounds	Leafy, Green, Yellow Vegetables, Pounds	Other Vegetables and Fruits, Pounds	Eggs, Dozen	Lean Meat, Poultry, Fish, Pounds	Flour, Cereals, (Baked Goods Equivalent), Pounds	Fats (Including Butter, Bacon, Salt Side), Pounds	Sugars, Syrups, Preserves, Pounds
Farm families											
All incomes	226	159	16	43	57	152	23	102	255	70	82
Under $500	177	97	14	27	49	135	16	73	274	66	68
$500 to $999	217	131	14	36	54	138	20	84	265	71	77
$1,000 to $1,499	241	198	18	49	59	150	26	117	241	70	89
$1,500 to $1,999	264	209	16	53	64	163	31	130	236	69	92
$2,000 to $2,999	282	233	16	66	71	193	34	148	226	71	102
$3,000 to $4,999	278	270	21	75	78	261	34	168	247	84	108
$5,000 or over	321	252	26	94	51	260	36	172	249	89	105
Village and city families											
All incomes	161	116	10	101	73	220	23	130	177	60	68
Under $500	84	85	10	31	41	105	15	69	223	61	64
$500 to $999	136	117	12	68	58	164	21	105	172	57	65
$1,000 to $1,499	173	119	10	96	72	210	24	127	167	58	69
$1,500 to $1,999	179	122	11	117	82	247	26	143	167	61	69
$2,000 to $2,999	196	124	9	142	91	286	28	160	171	63	71
$3,000 to $4,999	210	124	8	174	102	341	29	185	167	66	72
$5,000 or over	242	133	10	240	127	498	32	262	200	78	82
All families											
All incomes	177	127	11	87	69	203	23	123	196	62	71

* Data from Consumer Purchases Study (Stiebeling and her associates;[6] Stiebeling [7]), adjusted for seasonal consumption and for food eaten away from home.

grams of the United States Department of Agriculture. The food stamp program, direct distribution, school lunches and arrangements for low priced milk help channel an enlarged share of national food supplies to needy persons.[11] As a result, almost 175 million dollars' worth of additional food was made available to the underprivileged in 1940-1941. Although this amount is small compared to the total food bill of the country, the programs are of very great importance to the participants.

In 1940-1941 a monthly average of 8.8 million persons in family groups received foods made available under the direct distribution program, and an average of 2.9 million persons a month participated in the food stamp program. The school lunch program reached an average of 2.9 million children a month during the year (4.7 million in March, the peak month). Under the penny milk program, more than 900,000 children in eight cities, principally New York, purchased nearly 12 million quarts of milk. About 460,000 persons in family groups in six cities participated in low priced milk programs, purchasing 68 million quarts.[12]

As far as studies have been made[13] it seems clear that participants in these programs have better balanced as well as more abundant diets than nonparticipants of equal economic status. Something of the variety of the foods made available through the programs is indicated by the following list: butter, eggs, pork, lard, potatoes, other fresh vegetables, dry beans, rice, corn meal, wheat flour (white and whole wheat), oranges, grapefruit, apples and prunes. All these foods were bought in comparatively large quantities with blue stamps in 1940. (The list of foods available under the several programs varies from month to month.) These foods are not merely superimposed on supplies that would normally be purchased. Participating families follow the procedure of farm families—modifying their usual purchases somewhat, the better to complement those obtained without direct outlay.

Both the school lunch and food stamp program in 1940 reinforced the diets of participants in many directions, but especially with respect to vitamin A, thiamine and ascorbic acid. Food obtained directly through the program contributed little, however, to correcting the frequently recurring shortages of calcium and riboflavin. The fact that the programs were in operation, however, contributed to this end. For example, studies have shown that stamp plan participants buy more milk than comparable nonparticipants (milk is an economical source both of calcium and riboflavin, among other nutrients). Furthermore, sponsors of school lunches in many communities provided milk to supplement meals that could be prepared from foods furnished by the Surplus Marketing Administration.

The two government aided milk programs directly encouraging milk consumption among needy families were on a small scale in 1940. That families will greatly increase their purchases of milk when it is available at a low price is illustrated by figures from a study made in Washington, D. C.: Before the program was begun white participants consumed milk in all forms (fluid or evaporated or in the form of cheese or ice cream) in quantities equivalent in nonfat milk solids to 2.50 quarts of fluid milk a week per person and to 4.06 quarts after the program went into effect; among Negro families, the average quantity was equivalent to 1.89 quarts a week per person during the preprogram study, compared with 3.48 quarts afterward.

It is difficult to estimate the net effect on dietary levels of any public aid food distribution programs. How much the nutritive value of the customary diets of families on relief is improved depends on many things, including the usual food consumption of families before their participation in the program, the variety and quantity of foods purchasable or distributed through the programs and the adjustments in usual diet patterns that families make because of the foods available under the program.

Over-all per capita consumption of many foods was higher in 1940 and 1941 than in 1936 as a result of the combined influence of educational programs, increased power of consumers to buy, food distribution programs and more abundant food supplies. Gains were greatest in fruit and fresh vegetables. Consumption of fresh citrus fruit was more than a third higher —other fruit and fresh vegetables between 10 and 15 per cent higher. Consumption of meat and eggs was 8 to 10 per cent higher, but of dairy products less than 5 per cent higher. There was a slight decrease in the quantities of grain products and potatoes. These shifts probably have meant considerable increases in the ascorbic acid content of American diets and some increase in the consumption of protein, thiamine and riboflavin.

To provide the nutrients in quantities and proportions recommended by the National Research Council's Food and Nutrition Board, the Bureau of Home Economics has evolved a number of plans for market lists at various cost levels.[14] These market lists are in terms

11. The food stamp program was operating early in 1942 in areas containing more than half of the nation's population. Blue stamps, given under certain arrangements to public aid families, serve to increase by about 50 per cent the food buying power of those taking part in the program. Commodities designated by the Secretary of Agriculture are available at local stores in exchange for the blue stamps. Blue stamp foods listed during January 1942, for example, included eggs, butter, pork, fresh pears, apples, oranges, grapefruit, fresh vegetables including potatoes, dried prunes, dry beans, corn meal, hominy (corn) grits and various forms of wheat flour.

Where the food stamp program is not in operation, commodities bought by the Surplus Marketing Administration under programs designed to strengthen farm markets are distributed by welfare agencies to public aid families. The supplies so distributed are in addition to what these needy families are able to buy or otherwise obtain.

Increasing quantities of food are being distributed for use in school lunch programs for needy children. The lunches may be made in whole or in part from the commodities supplied by the Surplus Marketing Administration. In most places foods needed to round out the meals are supplied by the local community groups sponsoring the program in the schools.

Greater consumption of fluid milk is being encouraged among underprivileged families by low priced milk programs. These are of two types —one supplies milk to public aid families at a low price and the other makes milk available for use by school children at a penny a half pint. The low price at which the milk is supplied to eligible persons is made possible through provision for a special price to be paid producers, and through a federal indemnity payment to handlers whose bids for furnishing the milk are accepted. The indemnity payment, plus the price received from sales, reimburse each handler for the milk and the handling and distributing services. The special producer price paid for milk used in the programs is lower than that for regularly sold fluid milk but higher than the price producers receive for so-called surplus milk used for manufacturing purposes.

12. Surplus Marketing Administration, Monthly Reports, United States Department of Agriculture.

13. Gold, N. L.; Hoffman, A. C., and Waugh, F. V.: Economic Analysis of the Food Stamp Plan; A Special Report, United States Department of Agriculture, 1940. Southworth, H. M., and Klayman, M. I.: The School Lunch Program and Agricultural Surplus Disposal, miscellaneous publication 467, United States Department of Agriculture, 1941. Stiebeling, Hazel K.; Adelson, Sadye, F., and Blake, Ennis C.: The Effect of a Low Priced Milk Program on the Consumption of Dairy Products Among Certain Groups of Low Income Families, Washington, D. C., 1940, circular 645, United States Department of Agriculture, 1942.

14. Three market lists for low cost meals, and market lists for moderate cost and liberal meals, Bureau of Home Economics, United States Department of Agriculture, 1941.

general enough to be followed in any part of the country. If every one in the United States should follow such plans and thus redirect dietary habits, 1936 levels of consumption for the country as a whole would be increased by at least 50 per cent in milk and by at least 50 to 100 per cent in vitamin C rich fruits and the nutritionally important leafy, green and yellow vegetables. The increases in the consumption of milk in its various forms—skim milk, fluid and dry, cheeses and evaporated milk as well as whole fluid milk—would help enrich diets in both calcium and riboflavin. At the present time too large a proportion of our skim milk—a product that supplies all the nutrients of milk below the cream line—is used in animal feed rather than for human consumption.

Whether in the war year 1942 the dietary gains of the recent past can be maintained or accelerated and improvements in still other directions initiated, time alone will tell. Enormous quantities of food are needed for our own civilian population and armed forces and for those of other countries resisting aggression. Unless enough food and food of the right kind is produced, dietary levels will fall. To meet these enlarged needs the farmers of this country are undertaking in 1942 the greatest program of agricultural production in our history. Goals that tax farm capacity have been established for all products. In setting these goals, consideration has been given to the dietary needs of the people of the United States as well as to anticipated domestic and foreign market demands. While the increases necessary to provide nutritionally adequate diets for our entire population cannot be made in a single year—this would call for changes in dietary habits as well as in purchasing power and food production—steps in these directions are being taken.

If agriculture achieves its 1942 goals and no demands develop beyond those foreseen in early 1942, per capita consumption of domestically produced food can be maintained at a level as high as or higher than in the recent past. If these conditions prevail there should be further strengthening rather than any weakening in our nutritive status. Expected reduction in imports will result in only relatively minor changes in our dietary habits for 1942-1943. The smaller supplies of imported sugars may bring about the partial replacement of a highly refined product by foods having higher mineral or vitamin value. Unless oil production can be increased greatly (as is the plan) there may be some shortage of oil by 1943, but reduced supplies only of sugar and oil augur no ill for the nutritive level of this country. In fact, they may even bring improvement.

It is well to keep in mind, however, that there may be unexpected demands on our food supplies. In January 1942 the Secretary of Agriculture has said—"We are one of the twenty-six United Nations whose resources for winning the war are to be shared and placed wherever there is need. We don't know how many people we shall be called upon to feed outside the borders of the United States. Neither do we know how great the difficulties in the way of increasing our farm production may become, through shortages of rubber, steel, fertilizer and so on, but farmers and the processors and handlers of farm products are going to do their level best to meet the goals for higher production in 1942."

Whatever lies ahead, all of us as consumers can make a real contribution to dietary adequacy in this country if we will renew our efforts to use food wisely by avoiding waste and by bringing food habits closely into line with the teachings of the modern science of nutrition. Only thus can we translate into reality the oft repeated challenge "Let us make America strong by making Americans stronger."

Council on Pharmacy and Chemistry

THE COUNCIL HAS AUTHORIZED PUBLICATION OF THE FOLLOWING STATEMENTS. AUSTIN E. SMITH, M.D., Secretary.

ANNUAL MEETING OF THE COUNCIL ON PHARMACY AND CHEMISTRY

The Council on Pharmacy and Chemistry of the American Medical Association convened at the Association Headquarters, Oct. 2-3, 1942. Those in attendance were Drs. David P. Barr, S. W. Clausen, H. N. Cole, Morris Fishbein, E. M. K. Geiling, Chester S. Keefer, James P. Leake, Stuart Mudd, E. M. Nelson, W. W. Palmer, William C. Rose, Elmer L. Sevringhaus and Austin E. Smith. In addition to the members of the headquarters staff there were present, either for certain discussions or during the entire meeting, Dr. Ernest E. Irons, Secretary of the Board of Trustees, Dr. Robert P. Herwick, Chief, Drug Division of the U. S. Food and Drug Administration, Dr. Milton Veldee of the National Institute of Health and Dr. Donald Wallace, Secretary of the Council on Dental Therapeutics. In the absence of the Chairman, Dr. Torald Sollmann, the meeting was opened by Dr. W. W. Palmer, Vice Chairman.

The following is an abstracted report of some of the more important discussions and actions:

Dermatophytosis, "Athlete's Foot," Preparations.—The Council has thus far not accepted any preparations specifically for use in this condition. After extended discussions the Council took two actions: (1) authorization of the appointment of a subcommittee of the Council to draw up a plan of procedure for the consideration of preparations proposed for use by the public for the prevention of fungous skin infection (dermatophytosis) and preparations for the treatment of this infection to be used by the medical profession; (2) authorization of a status report concerning the prophylaxis and treatment of fungous skin infection by men with special knowledge in this field under the supervision of a Council member.

Vitamin Preparations.—The Council gave further consideration to this question and voted that no objection be made against advertising to the public of such preparations when the dosage is for prophylactic use only and provided such advertising is not objectionable under the Council's rules concerning direct advertising. The Council voted further that when such preparations are offered for therapeutic use, generally when the dosage prescribed is more than three times the minimum daily requirement [FDCA, Sec. 403 (j)], the advertising should be directed only to the medical profession. The Council also will publish a statement on the declaration of dosage on the label.

Contraceptives.—The Council considered recommendations of its Committee on Contraceptives for a method of procedure for consideration of contraceptive preparations and devices. The Committee's report was adopted, providing also for a further report on scope and criteria from the Council's Advisory Committee on Contraceptives. This advisory committee consists of men with special knowledge and training in this field.

Artificial Mineral Waters.—After extensive discussion the Council declared artificial mineral waters nonessential modifications of natural waters and voted that natural mineral waters be considered only as one feature prescribed by spas and health resorts and that they be not considered for acceptance by

the Council as individual products as there is no convincing evidence to show that the many therapeutic claims, which are made attendant to these preparations when bottled for individual use, are valid.

Metric System.—The Council considered the question of abandoning in its publications the use of the apothecary system and the use only of the metric system. After extended discussion the Council voted that, in future editions of New and Nonofficial Remedies, Useful Drugs, the Epitome of the U. S. Pharmacopeia and National Formulary and in Interns' Manual (with the consent of the Council on Medical Education) as well as in other Council publications, the metric system only will be used and that conversion tables for the apothecary system will be included in all publications. The Council further authorized the appointment of a committee to draw up a statement for publication at the time the foregoing action goes into effect, calling attention to trends such as the use of the metric system in vitamins and sulfonamide preparations and indicating the Council's desire for rapid progress in this matter.

Scope, Official Articles.—The Council discussed the question of the continued inclusion in New and Nonofficial Remedies of brands of drugs which have become official by reason of adoption in the U. S. Pharmacopeia. Although the Council's rules state that articles official in the U. S. Pharmacopeia or National Formulary are exempted from consideration by the Council if they are marketed under the official name or a name which makes the official status evident, and if no unestablished therapeutic claims are made for them, a number of brands of official preparations are listed in New and Nonofficial Remedies. The Council voted that the status quo in regard to the pattern of admitting articles to New and Nonofficial Remedies be observed within reason for the duration of the war; and that all official preparations be reviewed with the express purpose of elimination from New and Nonofficial Remedies of all those the retention of which seems to serve no useful purpose. The Council also voted that products which have been official for no more than twenty years will be considered for inclusion or retention in New and Nonofficial Remedies, also all serum and vaccines, and arsenicals for the treatment of syphilis.

Articles Accepted But Not Described.—For many years the Council has carried as an addendum to New and Nonofficial Remedies a "List of Articles and Brands Accepted by the Council but not Described in N. N. R." This was at first intended to be a list of articles exempt from the Council's consideration, such as official preparations, but has grown to include a miscellany of medicinal and nonmedicinal articles. The Council discussed the usefulness of such a list and voted that it now be deleted as a separate section from the book. Under the Council's rules this action cannot be completed until the expiration of the term of acceptance for the articles of this list now standing accepted. Articles whose usefulness justify retention will be inserted in an appropriate part of New and Nonofficial Remedies.

Censorship of Published Description of Articles.—The Council has been informed of the decision of the local Office of Censorship and the Board of Economic Warfare that statements of description or methods of preparation of new drugs on their original publication in THE JOURNAL should be subject to censorship in the interest of national defense. The Council voted to adhere to this decision and as a consequence for the duration of the war will eliminate from descriptions published in THE JOURNAL such statements as are disapproved by the authorities concerned or at the discretion of the Council and editorial offices. These statements will be available, however, in New and Nonofficial Remedies.

Medical-Pharmaceutical Cooperation.—A report of the committee to the Council concerning the Medical-Pharmaceutical Cooperation was made. The Council agreed to participate in another meeting which is to be arranged with representatives of the pharmaceutical profession.

MENADIONE BISULFITE

The Council adopted the term Menadione as the nonproprietary designation for 2-methyl-1,4-naphthoquinone (THE JOURNAL, Jan. 17, 1942, p. 226). Subsequently two pharmaceutical manufacturers corresponded with the office of the Council regarding water soluble derivatives of menadione; one of the firms submitted a product which was believed to be a sulfonated derivative of menadione but which, on examination in the A. M. A. Chemical Laboratory, proved to be a sodium bisulfite addition product of menadione.

In order to avoid confusion in the literature it is pointed out that published clinical studies which have dealt with the use of the compound 2-methyl-1,4-naphthohydroquinone 3-sodium sulfonate are in fact studies based on menadione-sodium bisulfite.

The Council has now adopted the term Menadione Bisulfite as a nonproprietary designation for the water soluble monosodium bisulfite addition product of menadione, and the interested manufacturers have been so informed.

NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

AUSTIN E. SMITH, M.D., Secretary.

PURIFIED PROTEIN DERIVATIVE OF TUBERCULIN (See New and Nonofficial Remedies, 1942, p. 531).

The following dosage form has been accepted:

SHARP & DOHME, INC., PHILADELPHIA.

Vacule Ampoule-Vial Lyovac Tuberculin Purified Protein Derivative: Containing an amount of lyophilized tuberculin purified protein derivative sufficient to yield at least 1 test dose per 0.25 cc. of restored solution; packaged with a 0.25 cc. ampoule of phosphate buffer solution for dilution, preserved with 0.5 per cent of phenol. Available in first test strength and second test strength. Also marketed in 10, 100 and 250 Vacule Ampoule-Vials packaged with sufficient phosphate buffer solution preserved with 0.5 per cent phenol to yield 1.5 cc., 12.5 cc. and 30 cc., respectively, of restored solution in either the first test strength or the second test strength.

SULFATHIAZOLE (See New and Nonofficial Remedies, 1942, p. 150).

The following dosage form has been accepted:

DRUG PRODUCTS COMPANY, INC., LONG ISLAND CITY, N. Y.

Pulvoids Sulfathiazole: 0.5 Gm. (7.7 grains).

DIETHYLSTILBESTROL (See THE JOURNAL, June 20, 1942, p. 635 and the Supplement to N. N. R., 1942, p. 26).

The following dosage forms have been accepted:

ABBOTT LABORATORIES, NORTH CHICAGO, ILL.

Ampoules Diethylstilbestrol in Oil, 0.5 mg. per cc.: 1 cc. in sesame oil.

Ampoules Diethylstilbestrol in Oil, 1.0 mg. per cc.: 1 cc. in sesame oil.

Tablets Diethylstilbestrol: 0.1 mg., 0.25 mg., 0.5 mg., 1 mg. and 5 mg.

Vaginal Suppositories Diethylstilbestrol: 0.1 mg. and 0.5 mg.

THEOPHYLLINE WITH ETHYLENEDIAMINE-U. S. P. (See New and Nonofficial Remedies, 1942, p. 332).

The following dosage form has been accepted:

WM. S. MERRELL CO., CINCINNATI.

Aminophylline Tablets: 0.1 Gm. (1.5 grains).

ASCORBIC ACID-U. S. P. (See New and Nonofficial Remedies, 1942, p. 564).

The following dosage forms have been accepted:

JOHN WYETH & BROTHER, INC., PHILADELPHIA.

Tablets Ascorbic Acid: 50 mg. and 100 mg.

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SATURDAY, MARCH 13, 1943

TRANSPORTATION OF DISEASE AGENTS

The movement of great numbers of men and women in the armed forces and in industry, the speed of transportation and the great variety of the regions concerned cause the United States Public Health Service to be faced with extraordinary problems in the prevention of importation of diseases into the continental United States. The ramifications of the problem are suggested by two recent reports from the Public Health Service. The first, by Parker,[1] deals with Ornithodoros ticks as a medium for the transportation of disease agents. Some of these ticks harbor in their tissues for a long time certain disease agents of which they are not known to be spontaneous hosts or transmitters. Ticks of this genus must therefore be considered as a possible medium for the transportation of disease agents such as rickettsiae and viruses when long periods of transit are involved.

Three attempts to use ticks of the genus Ornithodoros as a medium for importing from foreign countries disease agents of which they are not known to be normal hosts or vectors were successful. The diseases, the tick species and the minimum intervals between the ingesting of blood of infected guinea pigs by the ticks and the subsequent recovery of the disease agents from them were, for Tobia petechial fever, Ornithodoros rudis, eleven days and fifty-three days; for South African tick bite fever, Ornithodoros moubata, thirty-six days; for spring-summer encephalitis, Ornithodoros moubata, forty days. The recoveries of the causative agents were not made by tick bite but by injecting guinea pigs with saline suspensions of the tick tissues in the case of the rickettsial diseases and a broth suspension in the case of spring-summer encephalitis.

Olesen and Sherrard [2] discuss variations in rat infestation on vessels. Since 1940, they say, the number of fumigations of vessels has gradually increased and the average rat recovery from each vessel has been greater than during previous years. This has been due to the considerable increase in the number of tramp vessels coming to New York. Over such vessels competent sanitary supervision has not been heretofore exercised. As Olesen and Sherrard point out, it is not pleasant to contemplate the effect on the public health or on the war effort of the introduction of quarantinable diseases into the United States. Therefore it becomes increasingly important to maintain rat control as well as other precautions on arriving vessels. The difficulty of performing the requisite steps in the face of the secrecy necessarily attending ship movements, the loss of trained personnel, the quick turn around of ships and other factors is readily apparent. From reports such as these, however, it is clear that the United States Public Health Service is thoroughly aware of its responsibilities in this regard.

1. Parker, R. R.: Ornithodoros Ticks as a Medium for the Transportation of Disease Agents, Pub. Health Rep. **57**: 1963 (Dec. 25) 1942.

2. Olesen, Robert, and Sherrard, G. C.: Variations in Rat Infestation on Vessels, Pub. Health Rep. **57**: 1966 (Dec. 25) 1942.

PROSPECTS AND PROGRESS IN INDUSTRIAL HEALTH

Modern preventive industrial medicine was born in the first world war, then declined in the postwar years, only to regain lost ground and to uncover many new fields of usefulness during the period of preparedness and conflict in the Global War. The urgent necessity for conserving the health of essential war workers is unquestioned. Leaders in government, industry and medicine agree that this objective is of utmost importance, second only, in fact, to the health and medical requirements of the armed forces. The benefits of prevention of sickness and accident are equally valuable in peace, the only variables being urgency and the number of persons involved. Is this renaissance likely to subside again after the present unusual stimulus of production for war is over?

The force of interest in industrial medical organization will not subside as readily as it did twenty years ago. Large industry will continue to support a maintenance system which has demonstrated its ability to promote better production, lower absentee rates and improved labor relations. A major function of medicine and industry during the next few years will be the production of similar advantages for the small plant. The structure of governmental industrial hygiene services was largely undeveloped ten years ago; now it flourishes in every industrial state. The spread of dependable industrial health service is best consummated where correlation exists between the practicing medical profession, nursing and these public agencies for investigation and consultation in industrial hygiene. In this direction lies the hope for conservation of health in the small plants.

Much interest is developing in labor management committees now widely organized in war production

plants and in the possible relation of such committees to industrial health administration. This type of organization is strongly advocated by the War Production Board. Advocates suggest that many of the former causes of apprehension and militant objection by labor toward certain phases of industrial medicine could be effectively overcome by such arrangements. The medical profession has always felt that the interests of employer and worker are close together where health is concerned.

The trend toward prevention in industry has tended in recent years to modify the need for purely remedial medicine and surgery. This current will be reversed by the casualties of war and the reintegration of the disabled into useful employment. Rehabilitation, both physical and vocational, must therefore become a predominant medical problem, so that maintenance of the handicapped in gainful occupation will occupy medical and surgical minds for years. Welcome also is the attention that rehabilitation and prevention are apparently receiving from administrators of workmen's compensation.

The changing nature of the work force emphasizes the need for medical and hygienic supervision in industry. Millions of women are demonstrating ability to compete on equal terms with men in some occupations; they introduce new problems in industrial medical supervision. In one corporation the frequency rate of absenteeism due to sickness runs 320 per thousand for women compared to 89.1 for men, and the average time loss is forty-two days.

Innumerable proposals appear concerning technics for supplying preventive medicine and medical services to workers. One such plan offers health insurance with labor shouldering a proportionate share of the cost as a means to minimize many of the perplexing problems of administration of workmen's compensation. Such proposals must be examined with care and tested scientifically to determine their advantages and disadvantages. When sufficient data become available, medical economists may evaluate such plans more accurately.

STATE INDUSTRIAL HEALTH PROGRAMS

The movement toward more and better preventive industrial medicine has received force and direction from committees on industrial health in the state medical societies. Following the recommendations of the Council on Industrial Health, these agencies were to contain representation from private practice, industrial practice and the state bureau of industrial hygiene, all to assist in focusing the interest of every element in medicine on the physical welfare of workers. Already significant advances have been made. When the full implications unfold, no other committee in the structure of medical organization in each state is likely to exert more influence on the nature and standards of medical practice.

One of the principal obstacles to widespread industrial medical activity is lack of public interest, particularly among the managers of small plants. The fault is not that of medicine alone; it is equally a responsibility of management and labor. State medical society committees on industrial health have established excellent working relations with state manufacturing associations and are bringing directly to them dependable information on the benefits of competent industrial medical supervision. Representatives of organized labor need to be approached to secure cooperation in the development of medical and hygienic programs in large and small plants and also in the province of general health education. Workers spend far more time off the job than on it. Ordinary illness plus the combined effects of poor housing, wrong nutrition and injudicious use of leisure time are the most prolific causes of absenteeism due to sickness.

Two other phases of activity by state committees contain the secret of successful advancement of industrial health. If any considerable degree of public acceptance is to be developed, physicians, hygienists and nurses must be capable of meeting these new demands. Much effort is now being exerted to supply the medical profession with an awareness of modern industrial health methods. Much remains to be done, however, largely under the immediate stimulus of state medical organizations.

Already some of the state committees have organized cooperating units in the medical societies of industrial counties. Efforts in the counties should be undertaken in accordance with accepted community medical practice and public health administration. The type of committee representation described for the states is equally important in counties. Recommendations have already been published about a county medical society program in industrial health.[1] These committees must exercise medical initiative and leadership in any community industrial health department. Opportunities are numerous for local investigation of causes of absenteeism, for correlation of interested community health facilities, for education of the public to the advantages of preventive industrial medical service and for continuous instruction of the profession and ancillary groups about advances in industrial medicine, surgery and hygiene. It is through responsive activity in this field by individual practitioners that satisfactory contributions to the war production effort will be made by the medical profession.

1. Medical Service in Industry: An Industrial Health Program for a County Medical Society, prepared by the Council on Industrial Health, American Medical Association, J. A. M. A. **121**: 259 (Jan. 23) 1943.

Current Comment

PHYSICIANS URGED TO RELEASE QUININE SUPPLIES

Every physician is urged to contribute to the National Quinine Pool [1] all supplies of quinine and other cinchona salts and alkaloids not absolutely essential in his practice for the treatment of malaria. These compounds are needed to maintain an adequate stockpile of antimalarial agents for use in the armed forces. Although synthetic substances such as atabrine are being produced in enormous quantities and are used wherever possible, there are many conditions for which the drug of choice is quinine. Until the war is over little cinchona bark of good quality will be forthcoming. The currently available barks from South America are of a low grade and sufficient only for the manufacture of totaquine, which is satisfactory for domestic use. The provisions of conservation orders M-131 and M-131A [2] essentially restrict the sale, transfer, delivery or use of quinine salts and alkaloids to the treatment of malaria. Quinidine is an exception which may be used in the treatment of certain heart conditions. Such restrictions will permit physicians to contribute unused and opened quinine supplies to the National Quinine Pool, care of the American Pharmaceutical Association, 2215 Constitution Avenue, Washington, D. C. Each package received will be tested for identity, pooled and assayed. The less common salts will be processed to quinine sulfate or hydrochloride. The materials needed are bulk cinchona salts and alkaloids, tablets, capsules and pills; quinine, quinidine, cinchonine and cinchonidine. Do not send preparations of quinine or other cinchona derivatives in combination with other medicinal agents; ampuls and parenteral medication; liquid preparations or quinine and urea hydrochloride, quinine and urethane, quinine bismuth iodide, elixir iron, quinine and strychnine and similar preparations. The armed forces need all available quinine. Any contribution, no matter how small, will be useful; the need is urgent.

NATIONAL NURSING COUNCIL NEEDS COOPERATION OF PHYSICIANS

The National Nursing Council for War Service, which represents the voluntary, professional nursing organizations in the total war program, urges every physician in the country to lend his help and support to the current nationwide effort to locate all graduate registered nurses. A second national inventory of nurses, a follow-up on the inventory of 1941, was begun in January 1943. To date (February 25) responses from nearly 50 per cent of the nurses in the country have been reported. To help bring in responses from the remaining 50 per cent, physicians are asked to:

1. Encourage the nurses who may be associated with them, especially the nurses in their employ, to respond without delay to the post card questionnaires sent to them by the special state agent of the United States Public Health Service in January of this year.

2. Urge nurses they may know who have not received questionnaires (many physicians' wives who are nurses have failed to receive them) to request cards from the special agent in their states. If they do not know the agent's address, the National Nursing Council for War Service, 1790 Broadway, New York, will forward their requests.

Information provided by the inventory will furnish the basis of operation for the nursing supply and distribution unit now being formed in the War Manpower Commission. The purpose of the unit, as the name implies, is to determine the availability of nurses for local, state and national emergencies and to aid in the equitable distribution of nurses, so that the nursing needs of the armed forces and of civilians will be adequately met. This distribution will be on a voluntary, not a compulsory, basis. The inventory is being conducted by the United States Public Health Service and has the approval of the National Nursing Council for War Service, the War Manpower Commission and the Health and Medical Committee, Office of Defense Health and Welfare Services, Federal Security Agency.

INDUSTRY AND THE MEDICAL PROFESSION

Increased utilization of medical services by industry has been so rapid that training and experience have frequently had to be overlooked. Complaint is made that personnel without proper qualifications assume responsibilities beyond their professional capacity. Faulty x-ray interpretation by doctors and technicians and medical-surgical treatment by unsupervised nurses and aides lead to much dissatisfaction. Continued, unwarranted performances of this type hardly conform with standards of acceptable industrial medical procedure recommended by the Council on Industrial Health.[1] Until recently, management has been unable to secure dependable advice in the development of industrial health service. Improved organization in the state and county medical societies and in the state and local health departments will do much to overcome this lack of satisfactory rapport between medicine and industry. However, industry has sometimes misconstrued its own responsibility. If progress toward better working conditions and healthier employees is to occur, management must make industrial health service professionally worth while. The population groups involved and the results in terms of community betterment and well-being are so great that industrial health service should attract the best professional minds and equipment. Advancement will occur in direct proportion to the willingness of management and insurance to take industrial medical service off the bargain counter. Complaint is also received that physicians in industry occasionally use industrial connections to enhance private practice. The use of direct or indirect pressure on industrial workers by personnel in the industrial medical department in respect to management of any nonoccupational disorder is decidedly unfair.

1. The National Quinine Pool, Current Comment, J. A. M. A. **121**: 434 (Feb. 6) 1943.

2. Restrict Sale of All Quinine, J. A. M. A. **119**: 1512 (Aug. 29) 1942. Further Conservation of Cinchona Bark, ibid. **121**: 439 (Feb. 6) 1943.

1. Medical Service in Industry: Outline of Procedure for Physicians in Industry, prepared by the Council on Industrial Health, American Medical Association, J. A. M. A. **118**: 895 (March 14) 1942.

MEDICINE AND THE WAR

In this section of The Journal each week will appear official notices by the Committee on War Participation of the American Medical Association, announcements by the Surgeon Generals of the Army, Navy and Public Health Service, and other governmental agencies dealing with medicine and the war and such other information and announcements as will be useful to the medical profession.

ARMY

PROCEDURE OF PROCESSING PHYSICIANS, DENTISTS AND VETERINARIANS IN THE FIELD

The War Department Service of Supply, Officer Procurement Service, issued the following memorandum under date of February 27, covering the procedure for processing physicians, dentists and veterinarians in the field:

NOTE.—*This memorandum both restates prior instructions and contains new instructions. Immediate attention to its provisions is essential to field office work.*

1. *Scope of Memorandum: Rescission of Prior Instructions.*—(*a*) This memorandum states the procedure under which Officer Procurement Service will assist the Surgeon General in processing physicians, dentists and veterinarians for appointment as officers in the Army of the United States. The procedure here stated is approved for the processing and appointment of physicians, dentists and veterinarians only and does not apply to the processing and appointment of candidates for any other position for the Surgeon General.

(*b*) Prior instructions still in effect have been consolidated in this memorandum. Accordingly FT-15 (January 13) and attached memorandum, FT-17 (January 18), FT-24 (January 27), FT-29 (February 11), FT-31 (February 17), FT-33 (February 22) and all other instructions in this connection are hereby rescinded.

2. *The Surgeon General's 1943 Recruiting Program.*—(*a*) The 1943 program of the Surgeon General for the appointment of qualified individuals from civil life in the Medical Corps, Dental Corps and Veterinary Corps includes not only physicians, dentists and veterinarians established in their communities but also medical interns and residents of hospitals. This program is as follows:

	Hospital Interns and Residents	Others	Total
Physicians	3,000 approx-	6,900	9,900
Dentists	0 imately	4,800	4,800
Veterinarians	0	900	900
	3,000 appr.	12,600	15,600

The requirements of the Air Surgeon are included in the foregoing.

(*b*) The monthly objective for appointments of those other than from the hospital intern and resident category is as follows:

Physicians, Medical Corps	575
Dentists, Dental Corps	400
Veterinarians, Veterinary Corps	75
	1,050 per month

(*c*) The objective for appointments from the hospital intern and resident category cannot be readily stated in monthly quotas. Most internships terminate about June 30. Whereas small numbers of interns and residents may be available in all months, the bulk of the processing in this category should come during May, June and July. The number of hospitals in the eastern part of the United States being greater than elsewhere, the number of cases in this category to be processed in the East will be proportionately greater.

(*d*) All cases included within the Surgeon General's program here outlined will be dealt with in accordance with the procedure stated in this memorandum.

NOTE.—During years prior to 1943 the Medical Department commissioned many students and interns in the Medical Administrative Corps, A. U. S. These individuals have remained on inactive duty status pending completion of their medical education. Also medical, dental and veterinary students and interns who have previously been commissioned and now hold appointments in the Officers' Reserve Corps, in other branches, have been similarly deferred from active duty. During 1943 the existing commissions of these individuals may be terminated at their own request, under certain circumstances, and, when qualified, these individuals may be appointed as officers in the Medical, Dental or Veterinary Corps. Officer Procurement Service has no processing or other function in regard to such appointments. The appointment of individuals referred to in this note will be handled by the individuals directly with the Surgeon General. Inquiries in regard to such appointments should be referred to the Procurement Section, Military Personnel Division, Office of the Surgeon General of the Army, 1818 H Street N.W., Washington, D. C.

3. *States from Which Physicians, Dentists and Veterinarians Will Be Recruited.*—(*a*) (1) Physicians will be procured in the following states: California, Colorado, Connecticut, District of Columbia, Illinois, Iowa, Maryland, Massachusetts, Minnesota, Missouri, Nebraska, Nevada, New Hampshire, New Jersey, New York, Ohio, Oregon, Pennsylvania, Rhode Island, Vermont and Wisconsin.

(2) The following states have already contributed more physicians to the armed forces than the sum of their 1942 and 1943 quotas and will not be called on to furnish any more physicians, except interns and residents and except special cases for specific position vacancies, during 1943: Alabama, Arizona, Delaware, Georgia, Idaho, Kentucky, Louisiana, Mississippi, New Mexico, North Carolina, South Carolina, Tennessee, Texas, West Virginia and Wyoming.

(3) In states not listed in either *a* (1) or (2) there will be at present no procurement of physicians, except interns and residents and except special cases for specific position vacancies.

(*b*) There will be no procurement of dentists, except special cases for specific position vacancies, in Alabama, Arizona, Arkansas, Delaware, Florida, Georgia, Kentucky, Louisiana, Mississippi, New Mexico, North Carolina, Oklahoma, South Carolina, Tennessee, Texas and Virginia.

(*c*) There are no restrictions at present on recruiting veterinarians.

4. *Function of Officer Procurement Service.*—(*a*) Officer Procurement Service will process the papers of all physicians, dentists and veterinarians whose availability for commissioning in the Army of the United States has been determined by the War Manpower Commission (see paragraph 5) and will transmit to the Secretary of War's Personnel Board requests for appointment of such individuals, submitted by the Surgeon General.

(*b*) Officer Procurement Service has no function to perform until an officer procurement district office has received from the War Manpower Commission a determination of availability of a physician, dentist, or veterinarian. See paragraph 6.

(*c*) The district office will interview each candidate for character, integrity, reputation and qualification for commissioning as an officer. The investigation will be limited to these subjects and will not extend to an appraisal of professional qualifications. A form OPB-2 (completed as to the side containing the interviewer's remarks) will be included with the candidate's file when forwarded to the Surgeon General. (The other side of the form need not be completed.)

(*d*) The Surgeon General has discontinued all medical officer recruiting boards. In certain service commands, officer procurement district offices may find it desirable to arrange, in investigating candidates, for assistance from the chief of the medical branch in the service command.

(*e*) District offices will not forward to the Surgeon General any papers concerning unavailable physicians, dentists or veterinarians, except as requested by higher authority. Questionnaires

and related papers of unavailable physicans, dentists and veterinarians, if any, should be retained in the District office's inactive file pursuant to FP-14, Feb. 3, 1943, paragraph 6 *c*.

(*f*) Inquiries to a district office by physicians, dentists and veterinarians concerning whom no determination of availability has been received by the district office should be referred to the appropriate state chairman, Procurement and Assignment Service, War Manpower Commission. See paragraph 5.

5. *Function of War Manpower Commission.*—(*a*) The War Manpower Commission functions through its Procurement and Assignment Service. This service determines whether a physician, dentist or veterinarian is "available" for commissioning in the armed forces of the United States. No physician, dentist or veterinarian may be processed for appointment or appointed in the Army of the United States unless and until his availability has been so determined.

(*b*) In each state the Procurement and Assignment Service has set up three state chairmen: medical, dental, veterinary. Attached hereto, marked Tab A, is a schedule showing for each state the authorized chairmen, and their co-chairmen and vice chairmen, if any (herein called "state P and A chairmen").

(*c*) Each state P and A chairman prepares a monthly quota list of physicians, dentists and veterinarians (as the case may be) who are apparently suitable and who are determined to be available, for commissioning in the Army of the United States. To each individual so listed, the central office of the Procurement and Assignment Service sends a communication, inviting him to apply for service with the armed forces (opportunity being afforded to indicate on the inclosed reply card preference for Army, Navy or Medical Department of the Air Forces). The reply cards are sent by the potential applicants to the appropriate state P and A chairmen.

(*d*) On receipt from time to time by the state P and A chairmen of such reply cards, they give to Officer Procurement Service the notice of availability provided in paragraph 6.

6. *Notice of Availability Given by State P and A Chairmen.*—(*a*) Notice of availability of a particular physician, dentist or veterinarian within the jurisdiction of a state P and A chairman will be given by such chairman to Officer Procurement Service on form 97 ("Availability Clearance Form") or some similar form in duplicate. Preference for service with the Medical Department of the Army Air Forces will be plainly indicated on form 97 by the state chairman.

(*b*) Such notice of availability will be given by the state chairman direct to the designated officer procurement district office in accordance with the schedule shown on Tab B attached. This schedule has been set up to meet the convenience of the Surgeon General and must be explicitly followed. A designated district office which receives a notice of availability may forward it to another district office for necessary action (for example, New York City may forward to Albany or Buffalo).

(*c*) In the event that a notice is received by an officer procurement district office signed by other than the authorized state chairman, his alternate, or a person duly authorized by such state chairman to give notice in his behalf, the office will return such notice to the state chairman before taking action, with an explanation that only notices bearing authorized signatures can be honored.

(*d*) No action will be taken by an officers' procurement district office in any case until receipt by it of a properly executed form 97, evidencing determination of the individual's availability. Form 97 indicating unavailability should be returned by district offices to the proper state P and A chairman without action.

(*e*) Attention is invited to the provision of AR 605-10, paragraph 6:

> An officer of the Army of the United States must at the time of appointment be a citizen of the United States or of the Philippine Islands, or a citizen of a cobelligerent or friendly country, who otherwise possesses the same qualifications as a citizen of the United States. . . .

Any notice of availability of a physician, dentist or veterinarian who does not comply with this provision should be returned to the proper state P and A chairman without action.

7. *Processing Procedure.*—(*a*) On receipt of notice of availability in regard to an individual physician, dentist or veterinarian, the officer procurement district office will promptly contact the individual and arrange for an interview. At the same time the individual should be advised of the papers which he must furnish and the steps which he must take. See paragraph 8.

(*b*) In areas where considerable travel is involved, district offices will endeavor to schedule visits of their officers through such areas so that applicants may be interviewed at or near their home cities. District offices are authorized to cooperate with state P and A chairmen so as to facilitate the scheduling of such visits.

(*c*) The individual will be requested by the district office to complete all papers and take all steps required of him within fourteen days of the date of such request.

(*d*) If no reply is received from a candidate or if a candidate declines to act as indicated, a report thereon will be transmitted by the officer procurement district office to the state chairman.

(*e*) As soon as the candidate's processing is completed, the fully processed papers will be forwarded by air mail by the field office direct to

> Procurement Section,
> Military Personnel Division,
> Office of the Surgeon General of the Army,
> 1818 H Street N.W., Washington, D. C.

It is essential to carrying forward the Surgeon General's program that such completed papers be sent direct and not through channels.

(*f*) If the completed papers cannot be forwarded within two weeks after the date of receiving the notification of availability, the district office will advise the state chairman of the exact status of processing. The state chairman is charged with responsibility for making further inquiry of the candidate. In the event that the district office is about to complete the processing at the end of the fourteenth day of the period, such advice to the state chairman may be omitted.

(*g*) If a candidate's papers, on submission by the Surgeon General to Officer Procurement Service on a form OPS-3 are incomplete, they will be returned to the appropriate district office attached to a form OPS-2. When a district office receives such papers, it will take the action necessary to complete the same. On completion, the papers will be returned to Chief, Field Operations Branch, Officer Procurement Service, Washington, D. C. This is the only instance in which a district office sends papers concerning physicians, dentists and veterinarians direct to Washington headquarters of Officer Procurement Service.

(*h*) The decision as to grade and appointment to be recommended for each candidate rests with the Surgeon General.

8. *Papers to be Furnished by Candidates.*—(*a*) The completed file of each physician, dentist or veterinarian forwarded by a district office to the Surgeon General, pursuant to paragraph 7 *d*, should include:

(1) WD AGO Form 0850, in duplicate, with passport size photo attached and each question fully answered.
(2) WD AGO Form 178-2, in duplicate (Classification Questionnaire of Medical Department Reserve Officers).
(3) WD AGO Form 63, in triplicate.
(4) Affidavit of physical defect, in duplicate, if required.
(5) Form OPB-2 (OPS interviewer's report), in duplicate. See paragraph 4 *c*.
(6) Form OPB-5 (certificate of inspection of naturalization papers, if candidate is not a citizen by birth or has lost citizenship), in duplicate.
(7) Federal employee — written release from federal employment, signed by responsible executive.

(*b*) In addition to the papers listed in *a*, the completed file of each physician, dentist and veterinarian who is a graduate of a foreign (other than Canadian) medical school should include the following or, if not available, a detailed explanation in lieu thereof, with request for a waiver:

NOTE—Canadian medical, dental and veterinary schools are not deemed "foreign" medical schools.

(1) Transcript of preprofessional education, which must be equivalent to the requirements for admission to an approved American medical, dental or veterinary school (with certified translation).

(2) Résumé of the credit hours and grades received in each course at professional school; and, if more than one professional school was attended, full particulars in regard thereto.

(3) Photostat of diploma which was awarded after four years' academic instruction in medicine, dentistry or veterinary medicine (with certified translation).

(4) Photostat of license to practice in a state, territory or the District of Columbia (such licensure cannot be waived) or certification by an army officer on active duty that he has seen the applicant's license; also a license or registration authorizing practice in the country where professional education was obtained.

(5) Certificate of approved internship of not less than one year's duration in the case of physicians.

(6) If the candidate is a diplomate of the National Board of Medical Examiners, or if accepted by said board for examination, substantiating evidence.

(*c*) In addition to the papers listed in *a*, the completed file of each physician who is a graduate of a nonapproved medical school (Chicago Medical School, Middlesex College of Medicine and Surgery and Cincinnati Eclectic School of Medicine) should include the following:

(1) Letter from the dean of his medical school verifying the fact that he has satisfactorily completed a four year course of regular medicine and has been granted an M.D. degree.

(2) Letter from the superintendent of a hospital verifying at least one year of rotating internship on the part of the applicant.

(3) Photostat of, or certification by, an army officer on active duty that he has seen the applicant's license to practice medicine in a state, territory or the District of Columbia. (Such licensure cannot be waived.)

(4) Letter from three physicians who are graduates of an approved medical school and are practicing in the county where the applicant resides, stating that they know the applicant to be engaged in the ethical practice of medicine. Such letters should state the writer's school and year of graduation, in addition to information concerning applicant's professional qualifications.

(5) Evidence of membership in his local county medical society or a letter from the secretary of the district or county medical society, substantially as follows:

Place .....
Date .....

Dr. ..... of ..... is known to this society as a graduate of ..... Medical School, located in ....., ... He is engaged in the practice of medicine in ....., ..., having been licensed by this state since ..... He is, so far as is known, an ethical practitioner of medicine. He would be eligible to apply for membership in the ..... Medical Society if he had been in practice for.....years. Having attained such membership, he would be accredited to the..... District (County) Medical Society.

Signed.....
Secretary.....(District) (County) Medical Society.

(The applicant should bring his diploma and certificate of licensure to the district or county secretary when requesting such a letter.)

(*d*) In addition to the papers listed under *a* and otherwise required under *b* or *c*, the completed file of each physician, dentist or veterinarian who is a Canadian citizen should include the following:

(1) Evidence that he has applied for his first papers as an American citizen.

(2) A release from the Canadian legation.

(*e*) In addition to the papers listed under *a* and otherwise required under *b* or *d*, the completed file of a dentist or veterinarian should include the following:

(1) Photostatic copy or certified evidence of license to practice his profession for the current or the ensuing year in a state, territory or the District of Columbia.

(2) For an individual who has graduated from dental or veterinary school in 1942 or 1943 either a license to practice or a photostatic copy of diploma or certificate of the dean of the appropriate school as to graduation.

9. *Nonrequirement of Release from Selective Service Classification II-A, II-B, or III-B.*—Notwithstanding the provisions of AR-605-10, Dec. 30, 1942, paragraph 7 *j*, to the effect that "No civilian, of any age, will be appointed if classified as II-A, II-B, or III-B unless released from such classification by his local draft board," no such release need be obtained in the case of a physician, dentist or veterinarian whose availability has been determined by the War Manpower Commission (Procurement and Assignment Service). Neither is it required that a draft status certificate be furnished in regard to a physician, dentist, or veterinarian.

10. *Weekly Reports.*—(*a*) Each officer procurement district office will submit to Washington headquarters of Officer Procurement Service, as of Thursday night, commencing with March 4, 1943, a report of all cases handled under the foregoing procedure, in the form attached hereto and marked Tab C.

(*b*) In the March 4 report district offices will break down the prior cumulative aggregates of physicians, dentists and veterinarians into the three separate categories.

(*c*) The accuracy of the figures in the weekly report will be verified by the district office before submission, by checking as indicated on the form (Tab C).

(*d*) Notices of availability concerning physicians, dentists and veterinarians which are received by officer procurement districts designated to receive them from state chairmen (see Tab B), and which are forwarded to other officer procurement districts for action, will not be included in the weekly report of the office forwarding them. Such requests will be included in the report of the office which does the processing.

For the Director:

EMMETT F. CONNELY,
Colonel, A. U. S.,
Chief, Field Operations Branch.

COLLECT 150,000 GRAINS OF QUININE

In response to the government's appeal for quinine for the treatment of American troops in malaria infected areas (THE JOURNAL, Oct. 3, 1942, p. 377) the eleven Illinois state mental hospitals have collected from their supplies nearly 150,000 grains, Dr. Harry R. Hoffman, director of the Neuropsychiatric Institute, University of Illinois School of Medicine, Chicago, announced on March 5. Dr. Hoffman, who acted as collecting agent in the drive for quinine for the state of Illinois, indicated that the supplies in these mental hospitals presumably were acquired to be used in the artificial fever therapy of dementia paralytica, the quinine being used to cure the malaria in patients after it had served its purpose. This method is not now so frequently employed, as electrical means of causing a better controlled fever have been introduced. The Philadelphia College of Pharmacy and Chemistry, Forty-Third Street and Woodland and Kingsessing avenues, Philadelphia, was authorized by the War Production Board to act as an assaying depot for any unopened packages of quinine compounds that are contributed by pharmacists. All such packages should be addressed to the Quinine Pool at the foregoing address.

DEDICATION OF THE PERCY L. JONES GENERAL HOSPITAL

The U. S. Army Percy L. Jones General Hospital at Battle Creek, Mich., was formally dedicated February 22. Among those present were the Honorable Harry F. Kelly, governor of Michigan; Major Gen. Henry S. Aurand, commanding officer of the Sixth Service Command, with headquarters in Chicago; Major Gen. James C. Magee, Washington, D. C., Surgeon General of the Army; Brig. Gen. John M. Willis, commander of the medical replacement training center at Camp Grant, Illinois; Col. Joseph E. Bastion, chief of the medical branch of the Sixth Service Command, Chicago; Col. Norman T. Kirk, commanding officer of the hospital; Dr. John Harvey Kellogg, founder and for many years director of the Battle Creek Sanitarium; Mrs. Percy L. Jones and her daughter, Mrs. Charles Siegel of Erie, Pa., and many other distinguished guests. The remodeling of the hospital buildings, which a few months ago were those of the Battle Creek Sanitarium, is practically complete and about 400 patients have been admitted, including 175 sick and wounded soldiers from the Pacific theater of war. This hospital was named in honor of the late Col. Percy L. Jones, for many years a distinguished member of the U. S.

Army Medical Corps. During the ceremonies an oil painting of Colonel Jones was unveiled by his widow. Following the dedication, a reception in honor of Mrs. Jones was held in the Officer's Club. The Battle Creek *Enquirer and News* issued a special section pertaining to the hospital and the dedication. Additional information concerning the hospital was published in THE JOURNAL, Dec. 12, 1942, page 1220.

IN MEMORY OF FLIGHT SURGEONS

In memory of deceased flight surgeons, the memorial window which has been placed in the post chapel at the School of Aviation Medicine, Randolph Field, Texas, will be dedicated April 2. The window was presented by more than three hundred medical officers in the class of '42-F of Aviation Medical Examiners.

Memorial window in post chapel at School of Aviation Medicine, Randolph Field, Texas.

ARMY PERSONALS

Major Guy W. Harlow, Medical Administrative Corps, stationed at the Medical Replacement Training Center, Camp Barkeley, Texas, has been promoted to the rank of lieutenant colonel. Lieut. Col. Harlow has served eighteen years in the Army and was first commissioned as a second lieutenant in 1933. His family home is in Newark, Ohio.

PRESBYTERIAN HOSPITAL (CHICAGO) UNIT

Although U. S. Army General Hospital No. 13, the Chicago Presbyterian Hospital Unit, has not been called to active duty as a unit, the administrative officers, the 350 enlisted men and more than two thirds of its nurses are now in army camps and hospitals. The enlisted personnel reported to Camp Grant in December and to Camp Robinson in January, and the following medical officers had already reported for duty at Camp Robinson at the time the February bulletin of the Presbyterian Hospital of the City of Chicago was published: Lieut. Col. Homer K. Nicoll, chief of medical service; Majors Linden J. Wallner, Cyril V. Crane and George C. Turner, Capts. John Tysell and George Pelkey, and Lieuts. A. Deo Klein, D.D.S., and Robert K. Stockton, D.D.S. The commanding officer of the hospital unit is Col. Lyle S. Powell, and the administrative officer in charge of enlisted personnel is Major William T. Willis.

HOSPITALIZATION OF WOUNDED FROM OVERSEAS

The War Department has promulgated a hospitalization distribution plan for patients returning to the United States from overseas providing for transfer to general hospitals in the interior of officers, army nurses, warrant officers, enlisted men, dietitians, physical therapy aides, members of the WAAC's, contract surgeons and other military personnel who are to be kept under further observation and treatment. While such transfers will not be made when a break in treatment might retard recovery of the patient, the general policy will be to transfer to general hospitals designated for special cases those persons who require special treatment and to send patients who will be discharged for disability or who require prolonged hospitalization to a general hospital in the vicinity of their homes. Such transfers will be made, generally, when there are 25 or more such patients.

"HEALTH BOMB" FOR PROTECTION AGAINST INSECTS

With the guidance of the Surgeon General's Office of the Army, Westinghouse engineers have developed a simple throw-away metal dispenser, about the size of a tin can, which discharges a mist that is fatal to mosquitoes and flies, yet harmless to men, and thus arms our fighting men in tropical jungles with a new weapon against malaria and yellow fever. Each dispenser or "health bomb" is loaded with 1 pound of a liquid insecticide, developed by a chemist in the Department of Agriculture, Dr. Lyle D. Goodhue. The fine mist released can be turned off and on at will. Only three seconds is required to fumigate a pup tent, and one dispenser will fumigate two hundred and forty pup tents, fifty giant bombers, or 150,000 cubic feet of space.

The facilities of the Westinghouse plants are being expanded in order to be able to supply dispensers at a rate of ten thousand a day. This dispenser makes unnecessary cumbersome spraying equipment. The insecticide used is effective also against ants and cockroaches, and experiments are under way to establish its effectiveness against still other forms of insect life.

CAPTAIN FURBECK GRADUATES AT CARLISLE

Capt. George Nelson Furbeck, a native of Albany, N. Y., and a resident of Mexico, graduated in the twentieth officers' class at the Medical Field Service School, Carlisle Barracks, Pa., February 25. Captain Furbeck was the first United States citizen to graduate from the National University of Mexico Medical School. He interned at the General Hospital in Mexico City, was admitted to practice in accordance with regulations in Mexico and in 1932 came to the United States for a year's internship in Charity Hospital, New Orleans. In 1933 he returned to Mexico City, where he practiced medicine until the attack on Pearl Harbor, when he volunteered and was commissioned a captain in the U. S. Army. Captain Furbeck plans after the war to return to practice in Mexico City, where his wife and daughters reside.

PUBLIC HEALTH SERVICE

THE RAPID TREATMENT CENTER PROGRAM

To clarify the policies and responsibilities of the United States Public Health Service in the new nationwide system of rapid treatment centers for persons infected with venereal disease, a special edition of the *VD War Letter* was issued, March 1.

The rapid treatment center program, it is said, is an outgrowth of the national venereal disease control program begun in 1938 and has been developed by state health departments, United States Public Health Service, the Office of Defense Health and Welfare Services and the Federal Works Agency as a direct effort to combat a wartime threat to our national strength.

The basic responsibility of the Public Health Service is to provide consultation service to other agencies cooperating in the program and to furnish specially trained physicians, nurses and technical personnel to operate the centers. More than thirty centers will be in operation by the end of 1943.

Federal funds are made available for the establishment of the centers under the Lanham Act, which is administered by the Federal Works Agency. Each state project approved by Federal Works Agency is subject to prior review and certification by the U. S. Public Health Service.

The establishment of hospital facilities to which state health authorities may send a large number of infected persons, with the assurance that they will receive prompt effective treatment, will mean real progress in the ultimate eradication of venereal diseases as well as immediate assistance to wartime control. Federal, state and local health authorities will gain valuable experience in the administration of this type of institution. Finally, by applying the newer technics in the treatment of syphilis and gonorrhea, under the best medical supervision available in this country, we shall be able to demonstrate the effectiveness of these treatment methods on a large scale in order that the entire medical profession may profit by the experience thus accumulated.

Public Health Service physicians assigned on request by state health officers will be responsible for the medical program in most of the rapid treatment centers now operating, and others will be assigned to those established in the future. The physicians assigned to centers are given special training in the new technics of intensive treatment of syphilis and gonorrhea at Ann Arbor and Detroit, under the supervision of Dr. Udo J. Wile of the School of Medicine, University of Michigan. Public Health Service nurses assigned to the centers are similarly trained at the City Isolation Hospital, St. Louis.

Every syphilis patient admitted to a rapid treatment center is given a complete medical examination to determine his physical capacity to benefit from rapid treatment and the particular method to be used. It is expected that the maximum length of stay will not exceed ten weeks. Four rapid treatment plans ranging from the one-day massive dose with fever therapy to the six to eight week multiple injection method are being used at the present time in syphilis control. No one of these has been accepted as standard by the Public Health Service or by the medical profession. All of the current methods, or modifications of them, are used or considered for use at the rapid treatment centers.

Following are the rapid treatment centers by state and status of operation, as of February 13:

I. Rapid Treatment Centers Already in Operation

State and City	Capacity	State and City	Capacity
Arizona, Phoenix	56	Puerto Rico, Aguidilla	300
Colorado, Denver	40	Puerto Rico, Caguas	150
Illinois, Chicago	350	South Carolina, Goldville	125
Indiana, Indianapolis	25	South Carolina, Pontiac	125
Louisiana, Leesville	75	Tennessee, Knoxville	50
Missouri, Monett	25	Tennessee, Chattanooga	150
Oklahoma, Rush Springs	150	Texas, Houston	60
		Utah, Salt Lake City	40

II. Proposed Rapid Treatment Centers for Which Applications Have Been Approved by the Federal Works Agency and the President but Which Have Not Started Operations

State and City	Capacity	State and City	Capacity
Florida, Ocala	100	Panama, Balboa Heights	200
Florida, Wakulla	100	Tennessee, Memphis	150
Louisiana, New Orleans	200	Tennessee, Nashville	150
Mississippi, McLain	60	Virgin Islands, St. Thomas	25

MISCELLANEOUS

PUBLIC HEALTH UNDER HITLER

Ergebnisse der inneren Medizin, Berlin, contains an article by Dr. Widorfer on the spread of infantile paralysis in Germany. Since 1908 epidemics of this disease have occurred at shorter and shorter intervals. While the great epidemics of 1927 and 1932 soon became extinct, the epidemic which occurred in 1938 has never been wholly subdued. Places where children are present in larger numbers for purposes of recuperation are particularly vulnerable. The average age of the patients has shifted to the older age group (many adults now become infected). It seems that the virulence of the virus and also the spread of the disease have increased. Increases in the cerebral forms of infantile paralysis have also been observed.

According to *Dagens Nyheter*, Stockholm, of Dec. 2, 1942 TT reports from Oslo: The Home Department has decreed that doctors and dentists must pay a yearly subscription of 100 kroner to be allowed to carry on their profession. The new decree is intended to strengthen the economy of the new ordered doctors' and dentists' associations, which have very few members.

Folkviljan, Stockholm, of January 12 contains a front page article which states *inter alia* that during the previous session a Social-Democrat member of the Swedish Parliament, Andersson, said in Rixo that "one wonders at the large export of horses from Sweden." Horsepower has the advantage over manpower that sausage can be made of its producer when its strength declines, and horsepower is needed in Hitler Germany for sausage too. Just consider all the horses which have been eaten by the German divisions surrounded at Stalingrad for lack of other food. Possibly the small demand for horses in Sweden has caused the mass export of horses which is now taking place. An advertisement by the State Export Institute of the Royal Agricultural Board in Jordbrukarnas Forenings-bladet, No. 2, informs horse owners in Scania, Halland, Smaland, West Sweden and Narke that the purchase of horses intended for export will take place at forty-one different places between January 11 and January 22.

Berner Tagwacht of January 12 reports that the milk supply allowed to large cities in the south of France is catastrophic. Marseilles, Toulon and Nice receive only a few hundred liters daily, which is insufficient even for sick persons, small children and mothers. The inhabitants in these towns are receiving from the government's emergency supply 25 Gm. of rice and spaghetti per head daily.

NDZ of January 4 reports an order issued by the reich minister of the interior amending the order concerning the admission of doctors. The new order introduces certain relaxations of conditions for the students and thus speeds up the training. Under the old regulations the direct training consisted of six months' nursing, six weeks' factory or land service and six months' work as a medical assistant (famulus). The new order cuts down the nursing service to four months; moreover, it need no longer be done before the beginning of the studies, but the holidays may be used for it. The factory and land service need not in future be performed in factories or on the land but may be done in institutions and organizations which directly or indirectly work for the public health service. Finally, the order introduces certain changes in the regulations concerning examination marks. Child therapy is added to the three principal subjects of internal medicine, surgery and gynecology.

ORGANIZATION SECTION

OFFICIAL NOTES

ANNUAL CONGRESS ON INDUSTRIAL HEALTH

Fifth Annual Meeting, held in Chicago, Jan. 11-13, 1943

DR. STANLEY J. SEEGER, Milwaukee, Presiding

JANUARY 11—MORNING

Report of the Council on Industrial Health

DR. STANLEY J. SEEGER, Milwaukee: The necessity of coordinating activities of those interested in industrial health has reached a critical point. The shifting of large numbers of the population, the problems of housing and nutrition and the new hazards which are introduced by tremendous industrial expansion have all contributed to make the situation more complex. The essential medical character of industrial health problems and the necessity of medical guidance in their solution have remained a basic principle the soundness of which has become more and more apparent. The war has emphasized the fact that the American worker occupies a position which is superior to that of any other worker in the world when considered from the social, economic, medical and educational standpoints.

One of the important elements in the program of the Council on Industrial Health has been the development of cooperating agencies in the constituent state medical societies and, where practicable, in county medical societies. During the past year this activity has received vigorous stimulation from field work originating in the central office of the Council. Today the rank and file of physicians are being prepared to participate in industrial health activities to help safeguard our essential war workers.

The Council has repeatedly placed emphasis on the large number of workers whose entire medical program is provided by the general practicing physician. In smaller industries in most instances the only services in the field of industrial hygiene and health control are those which he may direct. The small plant offers numerous difficult problems when an attempt is made to supply to it modern industrial health service. The program for industry advocated by the Council stipulates the following:

1. A physician.
2. A nurse.
3. Industrial hygiene service.
4. Proper correlation of plant health activities with those of:
   (*a*) The practicing medical profession.
   (*b*) Industrial commissions.
   (*c*) Units of state, county and city health department.
5. A health program to include:
   (*a*) Physical examinations.
   (*b*) Plant inspections.
   (*c*) Emergency stations.
   (*d*) Reporting.
6. Adequate compensation of health personnel.

Definite progress can now be reported in the development of health programs of this nature. Those responsible for the conduct of industry must make industrial health programs professionally worth while. Not only must opportunities for satisfactory medical attainment be offered, but industry and the insurance carriers must take medical service, particularly in the small plant, off the bargain counter. Any one familiar with this work is impressed by the fact that many men have been discouraged not only by the professional uncertainties which surround it but by the nature of the competition which has been fostered by various agencies interested in the purely business aspects of health.

The obvious dependence of the practicing physician on the industrial hygienist and on the public health worker has been repeatedly emphasized by the Council. In order to accomplish their objectives, public health workers must make a genuine effort to foster the development of health service through the agencies of organization of the private physician. There is a growing recognition of the distinction between the functions which are appropriate to the practicing medical profession and those which belong to plant medical directors or official health administrators. The United States Public Health Service, through its division of industrial hygiene, has made most important contributions. Its states' relations have been established on a sound basis but in the light of the problem the latter activity can be regarded only as a beginning. The necessity of integrating the work of the practicing physician with that of other agencies, official and nonofficial, has not only been recognized by this council but its organization has been perfected so that such integration can be carried out effectively today. It is evident that conditions of work and their effect on health in relation to almost every human activity eventually come within the compass of medical study and research. It is hoped that industry, both large and small, can be made to see the advantage of developing health programs which will provide careers of satisfactory professional attainment so that workers may be provided with a uniformly high quality of medical service.

The Physician and Industrial Mobilization

MR. CHARLES P. TAFT, Washington, D. C.: The record of war industrial production in 1942 was accomplished by materials and men in industrial plants. The productivity and effectiveness of each man were profoundly influenced by many elements. None of these can be neglected in the future as many of them have been neglected in the past. We cannot permit conditions to continue at any point that keep us from the maximum application of manpower at the point of production. Health for the manpower is your concern, but it cannot have any narrow interpretation. It means safety too and requires the intelligent integration of health and safety services from cities, states and the federal government.

There is urgent need now for health and safety education, for good food, for sound health habits, for adequate recreation and for personal service and help in solving the family and home problems of the worker. Lack of ordinary sanitation in the community is an obvious danger, but crowded, dirty living quarters, filthy eating places or completely inadequate ones and no decent opportunities for relaxation begin to show their effects in a hurry.

The reported figures on time lost from industry are shocking; first comes the 15 per cent of time lost by reason of accident and occupational disease. That is your specific job, and it is being well handled in most of the larger plants. The smaller plants are a different story. Then comes the 85 per cent of time lost by illness arising outside the plant. The Public Health Service and Procurement and Assignment Service are hard at work to see that medical and dental service is available even in boom towns. We need more action and less resistance from local medical societies. Now we hear of absenteeism because of other reasons, holidays, necessary shopping, need for beauty service, excess spending money, hangovers, and illness of children of mothers in the plant. We are working to eliminate the latter by setting up adequate services for these children. The other causes need organized thinking in the plant and in the community. They won't solve themselves. One manufacturer put a beauty shop in the plant and cut the absenteeism of his new women employees.

The professional leaders in this field have the great opportunity which may never be adequately recognized but which is absolutely fundamental to winning the war.

Preventive Medicine in Industry

DR. JOHN H. FOULGER, Wilmington, Del.: Since in our war program few industries can avoid using chemicals, a discussion of preventive medical programs used in the chemical manufacturing industry will apply generally to all industry.

The problem before us is, first, to establish a program of preventive medical control in industry and, second, to educate physicians, management and workers in the details of this program.

Many physicians have entered the field of industrial medicine for the first time. Among other problems they have been faced with those of industrial toxicology. To a few, libraries may be easily accessible, but most new physicians in industry are being forced to learn by bitter experience. The demand for information, especially on industrial toxicology, has led to the planning of intensive training courses in many of our better medical schools. Most such courses are too comprehensive and too detailed. They do not approach the subject from the aspect of prevention but adhere to the conventional literature and procedures of industrial toxicology, giving information which helps only in diagnosis and treatment. Programs which include separate sessions on lead poisoning, benzene poisoning or poisoning by chlorinated hydrocarbons are not programs to teach preventive medicine. As long as they are chiefly concerned with ultimate effects of toxic agents or disease, just so long are they perpetuating the old idea of diagnosis and treatment and forgetting prevention.

A practical program of preventive medicine in industry must comprise two major parts: first, a proper selective examination, so that workers can be allocated according to their physical ability to withstand the health hazards of the job; second, properly designed and timed periodic examinations to assess the status of each worker while on the job and so to measure the efficiency of physical protective measures or to detect adverse effects of industrial or nonindustrial environment. The selective examination must include all those items normally used in diagnosis—x-rays, serology, electrocardiography, if necessary, as well as tests and standards which will be used in the periodic examination. Too often the industrial physician is merely an examiner and does not observe his men at their work. It is wrong to rely on second hand information for a knowledge of equipment and conditions in a plant. Situations which may seem admirable to the most conscientious manager or safety supervisor may be seriously wrong from the medical standpoint. As an example, consider the unrecognized frequency with which toxic materials are absorbed through the skin, and the great practical difficulty of preventing all contacts of workers with materials which they use.

The physician must know the relative degree of hazard in different plant occupations. He must know it not merely in terms of the ultimate toxic action of materials handled but also in terms of tests for departure from usual physiology which are to form the basis of the periodic examination. It will be useful if he knows a little of the ultimate effects of the materials used in his plant so that he will not assign a worker with a history or signs of liver disease to jobs involving exposure to compounds such as chlorinated hydrocarbons or trinitrotoluene, which injure the liver, or a man with an anemia to work with substances such as benzene, which affect the hemopoietic system. If he supervises men working with new chemicals of unknown toxicity he can and should assume them to be highly toxic and not allocate to the place in which they are used any man with a history or evidence of injury to any major tissue or organ.

The keystone of the program of preventive medicine is the periodic examination, which must be based on fundamental knowledge of the early effects not only of known chemicals but of chemicals which may be used in the future.

Each examination necessitates absence of the worker from the job. It must, therefore, be as brief as possible. Complex procedures using elaborate equipment or technical skill are obviously ruled out. So also are such manipulations as might evoke resentment from the worker or lead to possible claims of lost efficiency. Studies requiring blood sampling or twenty-four hour urine specimens should therefore be reduced to a minimum. The need to get the greatest possible amount of information from a brief examination requires that tests used in the periodic examination must give measurements, not opinions, and the measurements must be recorded in a form amenable to statistical study.

We have based a program of medical control of industrial exposure to toxic chemicals on measurements of blood pressure. The method depends on first giving a score to each properly measured blood pressure according to the difference between pulse pressure and diastolic pressure and established means for these two pressure components. Blood pressures at the exact mean (44 mm. pulse pressure, 79 mm. diastolic pressure) are given a score of 1.0. Other pressures have scores less than 1.0, the score diminishing the greater the difference between the pulse pressure or diastolic pressure and the corresponding mean.

Experience and statistics show that a score of 0.1 or less is definitely unusual and should not occur by chance alone in more than 6 per cent of a large number of normal people.

The blood pressure method is but one of a number which might be used to follow development of abnormal physiologic functions. It is the easiest and least expensive to apply, but other methods are being investigated continually and simplified for possible general use. The blood pressure method is particularly suitable for small industrial plants and therefore can fill an urgent need in the present war program.

Employee-Management Cooperation for Industrial Health

MR. WENDELL LUND, Washington, D. C.: Many attempts have been made to solve the problems of industrial accidents and industrial illness and malnutrition. I am convinced that a major reason why we have failed so far is that our approach has in the main been one sided. Because it is necessary to spend money to insure protection for workers, the responsibility for industrial health and safety has rested largely on the shoulders of the employer. Today the importance of war production demands that every man and woman in industry take part in the fight against accidents and sickness. Organized labor frequently feels about the company safety program the way it has felt about the company union—that both are designed primarily for the benefit of management. Workers feel that they have a special stake in matters of health and safety and that they should have something to say about them. It is for this reason that collective bargaining contracts so often include clauses dealing with health and safety.

The activities of the labor unions in the needle and garment trades are an example both of worker interest in working conditions that affect health and safety and of what can be accomplished through worker participation. In this case a powerful union, determined to better the working and living standards of its members, succeeded in improving working standards as well as wages and hours in what was a notorious sweatshop industry composed of thousands of small owners, weak, unorganized and incapable of taking broad steps to improve conditions throughout the industry. Yet the improvements brought about by the union have benefited the employers as much as the workers. Employee-management cooperation is now the pattern in the industry.

Another large labor organization which has shown a clear understanding of the importance of health and safety measures, and of labor-management cooperation in applying them, is the C. I. O.'s Industrial Union of Marine and Shipbuilding Workers of America. Of sixty-two collective bargaining agreements signed by that organization, forty-six contain health and safety clauses, and most of these clauses provide for the establishment of joint labor-management safety committees. The agreements which do not include such clauses are those signed with small subcontracting and supplier companies. A majority of A. F. of L. unions active in the shipbuilding industry have incorporated similar clauses in their collective bargaining agreements.

About 1,900 joint labor-management production committees were established in war plants all over the country. Three to four hundred of these have special subcommittees on safety and health.

In their efforts to reduce absenteeism, these joint committees have made special efforts to attack the causes of absenteeism. For example, where colds have resulted from poor nutrition, lack of rest or personal carelessness the committee members have discussed with their fellow workers the importance of proper eating and sufficient rest, and of caution in the presence of people with colds. Where sickness or injury as a result of working conditions or carelessness has kept workers away from their jobs, the committees have attempted to discover poor plant conditions and have suggested remedial measures to management or have analyzed job methods to eliminate unsafe working habits.

In a plant making gun mounts the Production Drive Sub-Committee on Health has made a study of diet and nutrition at home and at work, using literature and movies to spread the information in nutrition courses for workers' wives. This is training which shows results in the contents of the worker's lunch box and in the meal he finds waiting for him after the day's work. It is training which shows results in greater production. This subcommittee has also taken steps to arrest the incidence of oil dermatitis and to improve washroom facilities and has been instrumental in installing a shop canteen.

In a California shipyard employing many thousands of workers, the joint labor-management subcommittee on safety has made recommendations and helped to put them into effect concerning (1) the use of respirators in spray painting, (2) safe construction of scaffolding, (3) improvement in sanitary conditions, (4) improvement in housekeeping arrangements in the plant and (5) regulation of crane loads in shipbuilding operations. This subcommittee has also enrolled nearly a thousand men in first aid training classes and has established first aid stations at danger points in the yards.

There is a great deal of educating to be done, educating of both labor and management, before we can make any considerable inroads on the accident and sickness toll in industry. A large share of the responsibility for this education falls on the industrial doctor in his contacts with management and labor within the plant. On the management side he can make sure that the company's health and safety policies, implicit in the existence of the medical department, are understood and followed by all the supervisory employees in the plant. He can establish a close working relationship with the personnel office to help determine the job in which each new worker can achieve peak production. On the labor side he can take positive steps to know the workers and their organizations and to secure their confidence. In the matter of preplacement examinations, for example, he can make a point of discussing with the shop steward or other union officials the purpose of such examinations and the distinction between the preplacement and the preemployment examination. He should make it clear that all medical information resulting from such examinations will be held in strict confidence between the worker and the doctor and will in no way be used to the detriment of the worker but rather to insure his personal well-being and his effectiveness on the job.

One of the most constructive steps the industrial physician can take is to meet with the members of the local union in their own headquarters in order to explain to the workers themselves the purposes and principles of the plant health program and to give them a chance to ask questions and make suggestions. A series of such meetings on various subjects might be held, one on nutrition, one on venereal disease, one on control of the common cold, one on health habits, and so on. If the union has the facilities for a health program for its members and their families, the doctor might well serve as an adviser in setting up such a program.

The Labor Production Division is the agency within the War Production Board which is responsible for the best utilization of labor's energies and skills in war industry. Industrial health and safety are production problems of major importance which must be solved simultaneously with those of materials and facilities. The division staff in Washington and in the field stands ready to help in developing labor participation in industrial health programs.

Procurement and Training of Professional Personnel for Industrial Health

DR. CLARENCE D. SELBY, Detroit: The war industries are losing doctors in considerable number. Medical service in the war industries is deemed to be essential. It cannot be dispensed with. A specialty has grown up. General practitioners are not qualified either by experience or by knowledge to take the place of the physicians who have been trained in the industries. Therefore the problem became a serious one. It finally reached the point where about 20 per cent of the physicians in the war industries had accepted commissions in the military service, and great difficulty was found in replacing them, also great difficulty in obtaining physicians to take care of expanding industries. So the matter was brought to the attention of the Committee on Industrial Health of the Procurement and Assignment Service. This committee promulgated a definition of essentiality which specified that a physician employed in a war industry, as a medical director, as a specialist, a department head or as the only physician so engaged would be essential, provided he is carrying on an industrial health maintenance program, a program designed particularly to accomplish the selective placement of women, handicapped workers and overage men, in addition to the whole and healthy, and efforts based on our conceptions of preventive medicine for the reduction of absenteeism.

That original definition did not give consideration to the age of the physician. Any physician, regardless of age, who is carrying on such a program and occupied such a position in a war industry was deemed to be essential. More recently that definition has been modified to exclude physicians under 38 years of age from essentiality. In other words, any physician under 38 employed by industry, regardless of the program he is carrying on, or his status, is not regarded as being essential. However, I am informed that, in considering applicants for commissions from industry, the Procurement and Assignment Service will permit time for replacement purposes.

The Procurement and Assignment Service has instructed the chairman of the state committees to cooperate with the Committees on Industrial Health of the various state medical societies, which have been organized under the inspiration of the Council on Industrial Health in an effort to supply qualified applicants for the industries.

On request of the Procurement and Assignment Committee of the state, the Committee on Industrial Health will canvass the possibilities for qualified replacements. If none are found it will canvass further the possibility of obtaining somebody who might become qualified through a training program. That training program has been designed already and is rather rapidly being put into effect in two or three states. It does not involve a great deal of time. I will not burden you with the details, but the fact is that the Procurement and Assignment Service is quite cognizant of the needs of qualified medical service in war industries, and it has put into effect, in my opinion, an adequate program.

When the question comes before you, my suggestion is that you leave the decision to the Procurement and Assignment Board.

JANUARY 11—AFTERNOON

DR. LEROY U. GARDNER, Saranac Lake, N. Y., Presiding

Ocular Signs of Industrial Poisoning

MR. ROY S. BONSIB, New York: A large variety of industrial poisons give rise to transient disorders of the eyesight and some of them to permanent effects. Various toxic compounds may give rise to any one or more of these conditions, depending on the strength of the poison and the duration of the exposure. Other substances which formerly produced much eye trouble have been eliminated from modern processes of manufacture or the operators are better protected by the wearing of respirators and goggles, as well as the installation of exhaust fans.

Toxic amblyopia is a partial or complete blindness caused by a toxic substance which interferes with the function of the

retina, the optic nerve or the more central optic pathway. Every new drug used in medicine and every new chemical used in industry is a possible cause of toxic loss of vision, so that this subject is constantly growing in scope. Victims are becoming more and more compensation conscious, and the ophthalmologist, in order to be fair to both employer and employee, must have a thorough understanding of this subject. Persons who have been exposed to poisons which affect the optic nerve or the retina as a rule complain of temporarily disturbed vision as a first symptom. Recently acquired color blindness is an early symptom of poisoning. Another common symptom is disturbed vision described as heat waves. Diminished sharpness of vision and general depression of the visual fields bring the victim to an ophthalmologist usually with a request for glasses. The characteristic changes in the fields are a central blind or partially blind area in the visual field and disturbances in the color field. There may be deficiencies in accommodation. Carroll divides toxic amblyopias into three groups: (1) those caused by poisons which produce cortical or central blindness, (2) those caused by poisons depressing the entire visual field, but more especially the peripheral fields, and (3) those caused by poisons depressing exclusively or chiefly the central visual field.

Many volatile substances may seriously affect vision. Any substance that will cause accumulation of a fluid in the brain will cause a similar response in the eye.

Occupational keratitis as well as several other forms of keratitis are treated by Fuchs under diseases of the conjunctiva, and occupational conjunctivitis is defined as "an acute conjunctivitis found in certain industries where irritants—acrid vapors, liquids or dustlike particles—get into the eyes either by accident or as part of the day's work."

Davidson asserts that true occupational dystrophy such as is reported in textbooks and in the literature has not been observed. It should be the axiom in safety practice that there is no such thing as a minor hazard to the eye.

It is the responsibility of every safety engineer, of every physician or surgeon having any industrial practice and of every industrial nurse to become familiar with all the poisonous substances used in their respective plants and to take all possible steps to protect the employees who are exposed to these poisons.

Newer Concepts in the Prevention and Treatment of Wound Infections

DR. AUSTIN E. SMITH, Chicago: Various attempts have been made to define the properties of a good disinfectant for local use, but the prerequisites of a chemical agent remain, essentially, high activity against infecting organisms, fast action, low toxicity for human tissue, efficiency in the presence of organic matter, ability to penetrate tissue, solubility, stability, absence of unpleasant odor, absence of deleterious effect on instruments and comparatively low cost. No one agent has yet met all these requirements, although many preparations have been of inestimable value as aids in the prevention and control of infection. Certain agencies have taken steps to cope with the situation. The Food and Drug Administration now demands not only adequate labeling but definite antibacterial activity for new agents. The Council on Pharmacy and Chemistry, in recently adopting criteria for surface antibacterial agents, proposed that certain prescribed data be submitted when a manufacturer presents a preparation for Council consideration.

Under the laboratory section of the American Public Health Association there has been set up the Standard Methods Committee for the Examination of Germicides and Antibacterial Agents. At present this committee has referees for antibiotic agents, chemical antiseptics, chemical disinfectants, detergents, fungicidal and fungistatic agents, disinfection of air by germicidal vapors and mists and disinfection of air by ultraviolet irradiation.

Clinical knowledge has changed and is changing daily the practice of anti-infective therapy. The sulfonamides are one of the best examples for the cause of such changes. Effort to lessen the confusion over the number of agents in use by determining their specific values and by minimizing this number has made some progress.

The sulfonamides have created striking changes in the handling of wounds and the treatment of infection. Sulfanilamide, sulfathiazole and sulfadiazine locally have produced, as compared to the results of wound therapy of a few years ago, almost miraculous cures. Locally the sulfonamides have been applied as powder and in ointments, emulsions and solutions. It is interesting to note, however, that certain leading scientific bodies have declared that the local use of such preparations requires much more investigation.

Ultraviolet radiation has been advocated for sterilizing the air of operating rooms to prevent wound infection during operations, for use in wards of infectious diseases to prevent cross infection, for the sterilization of footwear, drugs, instruments, water and many other things. Notwithstanding the many unknown factors in this problem, the use of ultraviolet lamps for the control of infections which may be due to contaminating organisms from the surrounding area merits further investigation for application in hospital units, plants and laboratories. An example of industrial application is the use of ultraviolet germicidal ray lamps by some manufacturers of pharmaceuticals to keep the air as nearly sterile as possible in the vicinity of operations calling for the filling of ampules.

The spraying of chemical agents into the air to render that air sterile is not new. Recently this procedure has been subjected to renewed investigation and interest, and a number of agents, including propylene glycol, are being studied. While much of the work in this field has been of an experimental nature on the control of influenza infection, some work has been done on streptococci, staphylococci, pneumoccci, Hemophilus pertussis and other organisms. Some contradictory findings on the control of air borne beta-streptococci have been found to be due, at least in part, to changes in the humidity, high humidity apparently neutralizing the germicidal action of the propylene glycol vapor employed. Present work suggests that the amounts that have been necessary in the past for experimentation are not toxic. The pure vapor appears to be more effective than the so-called aerosol.

Detergents, both anionic and cationic, have received some investigation and again some recognition as antibacterial agents or as adjuncts to other anti-infective compounds.

Some ingredients of soap are claimed to have anti-infective properties. The Council on Pharmacy and Chemistry has periodically been requested to consider certain of these preparations and has found in each case that the claims exceeded the possible therapeutic effects.

Quaternary ammonium compounds have been suggested as anti-infective agents. This group of compounds is receiving much attention and appears to offer considerable promise for certain uses.

There is a class of agents that is currently the object of considerable attention because of the effectiveness of its members against certain bacteria of which they are extracts. This group of compounds has variously been called "metabolites" and "antibiotics" and includes extracts of fungi and bacteria. The following representative examples have been demonstrated and purified to varying degrees: gramicidin, tyrocidin, actinomycin, citrinin, penicillic acid, streptothricin, gliotoxin, proactinomycin, tyrothricin, penicillin, fumigacin and clavacin. All are being studied for specificity, comparative effect with other bacterial agents such as sulfonamides, the most effective mode of application and optimal dilutions, but isolation and identification remains to be achieved. Members of this group are almost specific in the treatment of certain infections, the most striking effects having been observed following application to gram-positive and certain gram-negative bacteria. In many instances the action is bacteriostatic; in other instances, definite bactericidal action may be elicited. Regardless of the ultimate findings, attention may well be directed to these agents in the hope that valuable aids may be added to the medical armamentarium.

While investigations on specific agents are proceeding at headlong pace, the prevention and treatment of certain types of infection also are receiving due attention. Thus some practices in therapeutics are being approached from two sides. For example, fungous infections such as ringworm are in a sense wound infec-

tions. Since they are the source of much trouble in industry as well as elsewhere, innumerable new agents and variations of old treatments are being tried. These measures range from the direct application of organic and inorganic preparations to the feet, stockings and shoes to the ultraviolet irradiation of footwear. However, the ideal agent or method has not been demonstrated. At present the Council on Pharmacy and Chemistry is undertaking a survey of agents used in this field in an effort to establish criteria for the evaluation of drugs used in the prophylaxis and treatment of fungous infections, to determine their merit on a comparative basis and to define the allowable claims which may be made for their effectiveness.

Recognition, Prevention and Essential Treatment of Occupational Dermatitis, with Particular Reference to Oil Dermatitis and Folliculitis

A full report by the Committee on Occupational Dermatoses, American Medical Association, Dr. Harry Foerster, chairman, will appear in THE JOURNAL at a later date.

Respiratory Infections in Industry

This joint report, by the Council on Pharmacy and Chemistry and the Council on Industrial Health, presented by Dr. Chester S. Keefer, appears in full in this issue, page 802.

Program of Immunization for Industrial Workers: 1. Vaccines and Serums: Indications and Procedure

DR. JAMES P. LEAKE, Bethesda, Md.: Though the risk from smallpox has decreased definitely in the United States as the result chiefly of the ordinary electric refrigerator with its freezing compartment where smallpox vaccine can be kept, the danger from fatal smallpox has not been extinguished, as last year's outbreak in Glasgow, Scotland, reminds us.

Our position on the immunization against smallpox may be indicated as follows:

1. Vaccination is the most important measure in the prevention of smallpox.

2. There are limitations to the value of vaccination in preventing smallpox, especially in regard to the duration of protection.

3. There are disadvantages, not always appreciated, in vaccination, especially if due care is not given to the procedure.

4. The hazards of smallpox have been diminishing recently, and before any given program of vaccination is adopted the advantages should be weighed against the disadvantages with respect to the various conditions in the employment concerned.

5. Thorough preemployment or early postemployment vaccination, if applicable, is the most desirable form of protection for industry and should be required in some places where the population is shifting. Active tetanus immunization with toxoid is used in the Army and Navy and is good. The Army has been using the fluid toxoid, the Navy the alum precipitate. In using alum precipitate it is worth while to put the needle parallel with the humerus, and not across, so that the injection is as deeply subcutaneous as possible, not intramuscular but so the deposit of the material isn't just under the skin. It remains there and sometimes becomes fluctuant. If some physician who doesn't understand those things sees it, it may be incised. It shouldn't be incised. They are not abscessed. They will go away, in general, with practically no attention at all.

Program of Immunization for Industrial Workers: 2. Problems of Organization and Administration

DR. LEVERETT D. BRISTOL, New York: This article appears in full in this issue, page 816.

JANUARY 12—MORNING

DR. WARREN F. DRAPER, Washington, D. C., Presiding

Industrial Physical Examinations

This report by the Committee on Physical Examinations of the Council on Industrial Health, American Medical Association, Dr. Harvey Bartle chairman, will appear in full in THE JOURNAL.

The Toxicity of Military Explosives

DR. LEMUEL C. MCGEE, Wilmington, Del.: Explosives are chemical compounds which can be made to break down rapidly and release energy through the formation of comparatively large volumes of gas. The various military explosives are prepared by simple chemical reactions and possess well known chemical and physical properties. Propellants such as smokeless powder liberate their expanding gas energy mass at a lower velocity than do high explosives, of which trinitrotoluene is an example. Some chemicals which are required in, and some compounds which arise out of, the manufacture of military powders and explosives have a toxic action on human tissues. This discussion concerns medical experience with a few of these substances.

Moderate exposure of man to toluene for a few hours results in fatigue, drowsiness, headache and evidence of depression of the central nervous system. If continued, such exposure causes muscular weakness and incoordination, nervousness, paresthesias and confusion. Acute poisoning by toluene can result in convulsions and death through respiratory paralysis.

Trinitrotoluene, (TNT, trotyl, trinol, tolite, triton or trilite) may enter the body by absorption through the skin, by inhalation of dust and fumes or by ingestion along with food and drink. It colors the skin yellow. Many such stained workmen have no complaints, others have skin irritation. When a mild dermatitis appears during the first few days or few weeks of exposure it is prone to clear spontaneously even though the workman continues his contact with trinitrotoluene. When the dermatitis appears in a worker having had several months to a year or more of contact with trinitrotoluene the lesions are apt to persist until the worker is removed from contact. Trinitrotoluene can damage the liver. Physicians who follow the experiences of trinitrotoluene workers feel that some persons are particularly susceptible to toxic effects of the compounds.

The most common complaint of workers in dinitrotoluene is that of an unpleasant, metallic, bitter taste in the mouth. Other symptoms are muscular weakness, headache, loss of appetite, vertigo, nausea, vomiting, insomnia and pain, numbness or tingling sensations in the extremities. The chief findings from clinical examination of intoxicated dinitrotoluene workers are pallor, cyanosis and anemia.

Tetryl (trinitrophenylmethylnitramine) is used as a filling for detonators and as a primer for high explosive shells. Because of its finely divided physical state, tetryl dust readily floats into the air. Coryza with sneezing, lacrimation and blepharitis with sticking together of the eyelids are common. The commonest complaint from tetryl workers is that of dermatitis. Lesions of the skin and bleeding from the nose are early manifestations of tetryl irritation. Symptoms which appeared late, usually after exposure of several months, are ease of fatigue, headache and loss of weight.

Fulminate of mercury ($Hg[CNO]_2$) is highly irritating to the human skin. Experienced workers on getting fulminate "sores" have learned that it is worth while to use a magnifying glass to enable them to find and remove crystals of the compound which lie buried in the lesions. Prolonged exposure to fulminate occasionally results in systemic mercurial poisoning.

The toxicology of the oxides of nitrogen has received extensive investigation. The clinical picture of nitrous fume poisoning may be one of several types. The most constant effects are those which refer to the respiratory tract. Poisoning by nitrous fumes usually leads to some degree of edema of the lung. The treachery of nitrogen dioxide lies in the seeming mildness of damage to the exposed man initially. The effects of exposure are notably insidious.

Diphenylamine, also known as hexite, is a derivative of aniline and is used extensively as a stabilizer in explosives containing nitro compounds. In American industry no instances of poisoning from exposure to this compound have been reported in recent years.

Lead azide (PbN_6) is an initiating compound used for bringing about detonation of high explosives. In spite of the potential hazard of lead poisoning, I have found no published reports of its occurrence in American plants preparing or handling lead azide.

Optimum Hours of Work

DR. JAMES G. TOWNSEND, Bethesda, Md.: There is a point where one can labor to maximum production and keep within a minimum number of hours. There are many variables, the type of work, its intensity and the type of employee, to consider. Older men, women and younger persons show signs of fatigue more readily than the young, virile individual who has been on the job a longer time and is used to it. Myers, in his work on industrial psychology, emphasizes the fact that every reduction in the working day leads to a decrease in accidents, spoilage of work, sickness and absenteeism. The reduction of working hours from twelve to ten, he says, leads to an increase in hourly and daily output. The reduction of working hours from ten to eight leads to a further increase in daily and hourly output, except in operations whose speed depends mainly on the speed of the machine. The reduction of working hours below eight, although increasing hourly output, does not usually lead to an increase in daily output.

Collier, in his work on outlines of industrial medical practice, says that a categorical answer to the question "What is the optimum hours of work?" is difficult. Evidence accumulated over a long number of years and in various occupations shows that, if hours of work habitually, or for long periods of time, exceed forty-eight per six day week, industrial health and efficiency are bound to suffer.

Brown of Princeton obtained opinions from executives of 128 companies. Sixty-nine executives of the 128 circularized preferred a forty-eight hour week. Brown states that the opinion seems to be unanimous that hours less than forty a week do not increase individual productivity, and hours above sixty a week decrease productivity and increase absence and accidents.

An advisory committee of government officials, together with industrial labor, has just met at the Department of Labor to secure a policy on optimum hours, concurred in by the War and Navy departments, the War Production Board, the Maritime Commission and the Departments of Labor and Commerce and Public Health Service. A joint committee examined all the available evidence, including studies made by experts and the practical experience of management and labor. The recommendations of this committee are pretty general and make ample allowance for temporary emergencies when, for a short time, longer hours or seven day weeks may have to be worked out. Furthermore, allowance is made for some variation in the optimum work week on different types of employment. In order for a plant to make this evaluation it is recommended that daily and weekly hours of employees in war production plants should be reexamined to assure those schedules which will maintain maximum output over a long war period. Hours now worked in some plants are in excess of those which can be sustained without impairing the health and efficiency of workers and reducing the full production. Plants which are now employing individual workers longer than forty-eight hours a week should carefully analyze their present situation with respect to output and time lost because of absenteeism, accident, illness and fatigue. It is also recommended that one day a week should be devoted to rest, with a thirty minute lunch period and a vacation. Vacations should be staggered and spread over the longest possible period. Vacations should not be permitted to excuse any shutdown of any department of any war production plant, except where such shutdown would not curtail production.

In order to assist plants to analyze their work week, a check list was prepared. The War Production Board has sent the list to over fifteen hundred labor-management committees, and it has been reprinted in many of the labor journals. It was realized when this check list was sent out that a good deal of confusion had been created by the emphasis given to the statistics on average hours released by the Bureau of Labor Statistics. These averages concealed the fact that many plants had been working hours that are much longer than the average, and it is precisely to this group that the hours recommendation is addressed.

This check list we do not have for distribution, but it is about the same size as the pamphlet containing the recommendations on optimum hours. It says on the face of it "This is not a government questionnaire. It is for your use in the plant and it is not to be returned to any government agency." The check list calls attention to how to locate what we call trouble spots. "Have you had an increase in accidents? Have you had an increase in absenteeism? Have you had an increase in labor turnover? Have you had a drop in output per worker or increase in spoilage, and rejects or poor quality of work? Have you had an increase in grievances or disciplinary cases for no apparent reason? In what departments or working units are any of these symptoms found? What hours per week are in effect in the departments or units in which these troubles, symptoms appear?

"The most efficient hours schedule for sustained maximum production depends, in part, on the type of work, the best hours to be determined by keeping certain records for each department or for operating units within departments."

Then the check list tells how the records should be kept, a record on output, which is the number of units produced per man-hour; man-hours per unit of output; the number of units rejected per man-hour; the time lost because of accident, illness, voluntary absenteeism. It is explained how to keep such a record. To measure, for example, the time not worked by persons who were scheduled to work: If 100 workers are scheduled to work 48 hours a week, that is 4,800 hours. If 20 are absent, 1 a day for an 8 hour day, that is 160 hours per week; 160 divided by 48 is 3.3 per cent absenteeism.

Then plants are asked to keep records of the accident frequency rate and the number quitting because of too long hours, the number of grievances arising out of too long hours, and a comparison of absentee records with earlier periods. Ways to determine the best daily and weekly hours and sample forms of tables are shown. It is some gratification to know that this pamphlet, through the combined thinking and action of eight different government agencies, has been responsible for being of some help in pointing toward solving a perplexing problem.

Women in Industry

The preliminary report of the Committee on Health of Women in Industry, Section on Obstetrics and Gynecology, American Medical Association, Dr. H. Close Hesseltine, chairman, appears in full in this issue, page 799.

Prehabilitation: A Report and Recommendations

DR. WILLIAM A. SAWYER, Rochester, N. Y.: A health project for industrial trainees was set up in Rochester, N. Y., about two and a half years ago. The total cost of this prehabilitation project over a two and a half year period (up to Dec. 31, 1942) has been $18,087.

The trainee in the Rochester project is given a complete preplacement medical examination, of the type given at larger industrial plants of the city, at the time he registers for a shop school course. His physical condition and defects are noted on a special record card with a separate blank for past medical history. In addition to the general check-up, the examination included a urine examination (discontinued in February 1942 because of a lack of personnel, but to be resumed shortly), a tuberculin skin test and a Wassermann test. All persons who react positively to the tuberculin skin test are urged to have an x-ray examination of the chest at the County Sanatorium. All but 9 per cent have availed themselves of this opportunity. Those who have not are periodically (every two months) sent a letter urging them to make an appointment for an x-ray examination.

Following the medical examination, a preliminary rating is made. At the time of being notified of the rating the trainee is urged to visit the Tuberculosis and Health Association office. There the record is reviewed and the noted defects are rechecked with the objective of qualifying the trainee as soon as possible for employment "specifically cited." Arrangements for necessary treatment are made through personal physicians or existing community facilities, as under no circumstances does the medical consultant give treatment or do nurses make home visits for treatment purposes. Clinics and hospitals, as well as private physicians, are most cooperative in this respect. The medical consultant suggests the type of work the trainee is capable of doing. Fitting the man for the job he is physically qualified to fill is the most significant feature of the project.

All trainees found to have definite visual and hearing defects, cardiovascular disease, diabetes, kidney disease and other chronic diseases were referred to clinics or private physicians, and physicians were requested to give reports of present status to the employment service. In the original ratings hernia (138 cases) was an invariable cause for rejection and therefore 45 trainees were referred for surgical treatment. Of the 210 trainees (4 per cent of the total examined) found to have varicose veins, all except 4 were approved for some form of employment after reexamination. The 65 (1.24 per cent) trainees having positive Wassermann reactions, having satisfied health department authorities that they would continue under treatment, were subsequently approved for employment with one exception. Arrangements were made to give smallpox vaccinations to men with no vaccination scar.

Defects Noted

Total industrial trainees examined, 5,242 (1,534 women)	
Underweight	567
Overweight	1,203
Vision, distant, pronounced	541
Slight	696
Near, pronounced	538
Slight	417
No vision in one eye	121
Teeth: Caries	1,116
Pyorrhea	57
Cleaning	251
Extraction	132
No teeth	8
Infected gums	50
Low hemoglobin: Pronounced	57
Slight	100
Tonsils: 2	155
3	100
4	49
Infected	12
Thyroid	117
Hearing: Pronounced	84
Slight	93
Heart murmur	223
Rapid pulse	12
High blood pressure	549
Low blood pressure	97
Hernia	138
Relaxed rings	86
Skin condition	59
No vaccination	151
Scoliosis	32
Varicose veins	210
Relaxed arches (flat feet)	433
Varicocele	96
Hydrocele	15
Genitourinary	18
Gonorrhea	3
Positive tuberculin skin test	1,726
Positive chest x-ray examination	40
Positive Wassermann reaction	65

Of the total examined, 1,726 (33 per cent) were found to have positive tuberculin skin tests and were referred to the County Tuberculosis Dispensary for chest x-ray examinations. Of this number 4 by 5 photoroentgenograms were taken of 1,567 (91 per cent). A total of 40 cases of clinically significant tuberculosis (0.76 per cent) were discovered after 150 (9 per cent) were given repeated x-ray examinations at the sanatorium. Of the 1,059 trainees seen by the medical consultant, 951 were found to be employable, 242 in selected jobs.

In this prehabilitation program, effort was concentrated on the correction of the following defects or conditions: Overweight, 1,203 by treatment. High and low blood pressure, heart murmurs, 646 by reference to work specifically cited. Pronounced near vision, 538 by examination for glasses. Pronounced distant vision, 541 by examination for glasses. No vision in one eye, 121, special job assignment being recommended. Hernia, 138, of whom 45 were referred for surgical treatment, others by wearing a truss. Pronounced hearing defects, 84, with special job assignments. Positive Wassermann reactions (syphilis) 65, by physician treatment till Wassermann reaction becomes negative. Tonsils grossly enlarged and infected, 61, by operation or treatment. Anemia, 57, by treatment. Positive sugar or albumin in urine, diabetes, 54, by physician or hospital treatment till urinalysis was negative. Infected mouth conditions, 50, by dental treatment. Tuberculosis, 40, by medical supervision through county sanatorium. Gonorrhea, 18, by physician treatment till culture was negative.

A total of sixty-seven physicians have participated in the physical examinations. Approximately six are examining at any one time. They are assisted by two nurses (full time) and eight nurses (part time, during clinic sessions only). Physicians are paid $1 for each examination, and clinic nurses are paid at the rate of $1 an hour. The medical consultant received a small monthly honorarium. Clerical service was in charge of a trained information secretary. She was given office assistance. Every six months home visits are made to those who have not responded to letter follow-up. Through the two and a half year period of the operation of the project a number of improvements in procedure and changes have taken place.

Among the procedures recently carried out which have improved clinic service have been the centralizing of activities in a central clinic, holding two sessions a week, the central housing and handling of all records and an increase in clinic service provided, which has made possible the speeding up of rating and referring to cooperating agencies.

Recommendations: 1. A community preplacement medical examination, consultation, refer service is essential, especially in wartime, when there is a manpower shortage. It can be carried on at a reasonable unit cost if the various agencies interested help to bear a part of it. With all items included, the cost will not be less than $5 per person examined.

2. Examination should be compulsory. Those found not to be employable should be eliminated from shop school instruction. The seeking of medical advice regarding job placement should be made compulsory.

3. It is believed that there should be some way of requiring trainees to have defects corrected before completing the course.

4. No financial provision need be made for corrective care, but some provision should be made for recording the care sought and obtained.

5. At the time the trainee is recommended for employment there should be a certification that those recommended for job placement are free from active tuberculosis, infectious syphilis and any other communicable diseases or conditions dangerous to fellow employees.

6. During the course of training, advice regarding the importance of good health habits and nutritional needs should be systematically presented in their relationship to efficient work capacity. Health education is a vital part of prehabilitation.

The Older Worker

DR. ANTON J. CARLSON, Chicago: This article appears in full in this issue, page 806.

JANUARY 12—MORNING

DR. RAYMOND HUSSEY, Baltimore, Presiding

SYMPOSIUM ON MEDICAL RELATIONS IN WORKMEN'S COMPENSATION

Report of the Committee

DR. RAYMOND HUSSEY, Baltimore: The Committee on Workmen's Compensation of the Council on Industrial Health has been in existence now for eighteen months. Our effort has been one of achieving orientation in this field. Workmen's compensation is complex and heterogeneous. Many of us are inclined either not to think at all about workmen's compensation or we are inclined to think of it rather lightly.

There is a great deal of adverse criticism by the representatives of the various agencies concerned with the development and operation of workmen's compensation. That is particularly true in the papers that are read at the meetings of the International Association of Accident Boards and Commissions. I have been impressed with the almost venom one encounters in reading the proceedings of that organization, and it is usually aimed either at the insurance group or at the medical group.

If we stop and think of what the situation in medicine and in law and insurance was when workmen's compensation was first started, we shall find much to feel encouraged about. In 1911 when the first workmen's compensation act became effective—that was in Wisconsin or California if I remember correctly—medicine was largely a neighborhood practice. The attitude of

the medical man toward his patient was extremely private in nature, what we usually speak of as the physician-patient relationship. He regarded whatever he learned about the patient in great confidence and kept that information in confidence.

The legal profession had been buried for years in the idea that damage claims for personal injuries were carried on through action of what the lawyers called "tort," which has to do with the fault or negligence of some one else, and with respect to industrial injuries they had the master-servant concept in the law. An interesting paper was written by Mr. Tom Bartlett of Baltimore in which he leaves me with the impression that for lawyers to be separated from that idea of the master-servant concept is pretty much the same as taking away our idea of the Holy Trinity. Administrative law, in which workmen's compensation is included, was hardly popular to say the least. Lawyers distrusted this type of law.

Workmen's compensation is more than merely a provision for benefits and the payment of the cost of medical care. Too frequently one's idea of workmen's compensation stops with that concept. Equally important is prevention of accidents or disease, and the rehabilitation of the injured person. I feel that that triad must be regarded as the fundamental principle of workmen's compensation.

What was the status of medicine at the time workmen's compensation commenced? Public health was in its swaddling clothes. We had no one, so far as I am aware, in this country who was appointed health commissioner. We had no public health schools. We had practically no instruction in public health. Preventive medicine had hardly commenced to breathe. Administrative medicine was in the blastodermic stage.

There are two things that we ought to attempt to accomplish: One is to hold meetings between the various groups interested in workmen's compensation where points of view can be expressed, where corrections can be made in points of view and where we shall have a basis for common understanding.

All of us must recognize that we do have a new branch of medicine, administrative medicine, which deserves a much more prominent role in the commissions that administer compensation laws. In my opinion all hearings on disputed medical issues should be before medical men. One of the greatest difficulties that has been emphasized all through this work has been the absurdity of medical testimony and the ridiculous judicial decisions that are made from time to time. We must keep in mind always, it is true, that workmen's compensation is social legislation. It is a legal system but it is also a social system, and the judiciary certainly are influenced in their liberal interpretations because of that.

We have had enough information accumulated in Maryland with the Medical Board for Occupational Diseases to indicate that the testimony that physicians give when the hearing is before medical men is entirely different from the testimony they give when it is being heard before laymen. All laymen like to dabble in medicine, but when they have no background in physiology, pathology or biology it is merely having so many words in one's mind. Sometimes the way they are employed is rather funny so far as the medical man is concerned.

One of the problems of workmen's compensation that is crying for help is the problem of disability determination. It is one thing to say that and it is quite another thing to do something about it. It is an extremely complex field of effort. I hope sometime within the next year it will be possible for us to get a group interested in doing something that has never been done, and that is to state clearly what the problem of disability determination really is.

The most frequent criticism made of medicine in workmen's compensation is that it is not an exact science. What is an exact science? The term "exact" is relative. Physics was regarded as an exact science until radioactivity was discovered.

The American Medical Association, through its Council on Industrial Health, is intensely interested in doing something in the field of medical relations to workmen's compensation, and we cannot do it unless we get the cooperation of all parties concerned.

I hope that we may regard this as the first annual conference on this subject.

DISCUSSION

MR. J. W. HOLLOWAY JR., Chicago: The Bureau of Legal Medicine is happy to collaborate with the Council on Industrial Health in initiating a conference of this type. Our contact with the problem of workmen's compensation is limited to a study of pending legislation or proposed legislation in the different states. We have a legislative reporting service that sends us copies of all legislation of any particular interest to the question of public health or to physicians. We get copies of all state legislation on workmen's compensation, and as far as we are able to do so we study those proposals and abstract them and publish them in THE JOURNAL. Our other contact with the problem is through court decisions. We try to keep in touch with the current decisions of the courts of record, the courts whose decisions are published, and compile these cases, and we are trying to develop in the Bureau a fund of information to which the various state medical associations, the county medical societies and physicians may turn in case they need information of this particular type. We are constantly receiving inquiries from physicians all over the country who have been called to testify in workmen's compensation cases, asking for information that will qualify them really to testify as experts. The information may be available, but unfortunately it is not very accessible at the present time.

Allergy: Its Place in Compensation Procedure

DR. J. A. CLARKE JR., Philadelphia: This report may be useful to legislators and compensation boards of various states in their efforts to dispense justice.

I. Allergy is a term used to explain certain diseases of man resulting from contact with various substances foreign to the individual. It differs from the usual diseases in that in allergy a special abnormality exists in the affected individual rather than in any harmful quality inherent in the substance which produces the disease, which appears then through no fault or neglect of either the employer or the employee. It is therefore purely accidental (dependent in some measure on a constitutional defect in the individual in which inheritance plays some part) and little if anything can be done to prevent it.

Allergy may be defined as an unusual reaction on second or subsequent exposure to substances that are ordinarily considered harmless. An excessive response to natural irritants is therefore not an allergy, as some observers claim, and such quantitative variations appearing particularly in the skin are not considered in this report. (Idiosyncrasy more accurately describes such conditions.)

The foreign substances causing the allergic symptoms are known as allergens, and the person in whom the symptoms appear is known as an allergic person. The allergic diseases recognized at the present time are asthma, hay fever, certain cases of nasal congestion, certain dermatoses (eczema) and urticaria. Any one or all of these diseases may be produced by allergens encountered in industry, but the symptoms may not appear until after months or years of contact without symptoms.

If any employee eligible for compensation becomes incapacitated because of an allergic disease he should be studied by a physician skilled in allergic methods. The result of the study should be made the basis of any settlement.

II. After such a study, the majority of the sufferers will fall into one of the following classifications, which it is hoped will be accepted and used as the basis of laws and rulings:

A. When the allergic person becomes sensitive to an allergen which he encounters only in the pursuit of his occupation, thus making it impossible for him to pursue this occupation. Allergic treatment cannot be relied on because contact with the allergen in industry is usually excessively great. The injections decrease a person's sensitivity and he is correspondingly relieved of his symptoms. However, since this relief is only relative, the result is not likely to be satisfactory. It should be attempted only under unusual circumstances, in which case the possibility of failure should be realized by both the employer and the employee. Such persons should receive compensation in the form of weekly payments for a fixed and limited period sufficient to enable them to secure other employment.

Note 1. While a person is becoming sensitive to a substance in his occupation, he is likely to become sensitive to other substances, particularly in his home. Discovery of any other substances to which the sufferer may be sensitive should not influence the case in any way.

Note 2. It is impossible to determine how long a time interval is necessary to develop a sensitivity. Therefore, when a man is employed in the same occupation by a number of different employers, the firm employing him at the time the allergy appears should be arbitrarily liable for compensation.

B. When the allergic person becomes sensitive to an allergen encountered in large quantities in his occupation but encountered in less quantities outside. Here the damage is greater than in A because symptoms will persist for years after he finds other employment.

It is at least reasonable to presume that the excessive exposure in his occupation largely contributed to his sensitivity. Under these circumstances an attempt at allergic treatment is imperative and the cost of this treatment should be added to the compensation allowed in A. The limits of such compensation should be fixed arbitrarily.

C. When an allergic person becomes sensitive to an allergen largely encountered outside his occupation but present also at his work. The employer alone cannot be held accountable for this illness. On the other hand, the worker will be unable to pursue his usual occupation in the future.

In this group the occupation is at most only a contributory cause of the allergy. The man would have become allergic in any employment but is unable to pursue his present job.

In this group justice is not as simple as it is in A and B. Since the employment is only a minor cause of the disease, the employer should not be held responsible for future treatment. However, since the nature of the employment precludes the possibility of the employee continuing at his old job, it would seem just that he receive a limited compensation to pay for his loss of time while seeking other employment.

Note. Many persons in this group can be given other work by the same employer in which he will not be exposed to the allergen to which he is sensitive. If this is possible, it should relieve the employer entirely of further responsibility.

D. When an allergic person becomes sensitive to substances never encountered in his occupation. It would be unfair to hold the employer responsible in any way for this illness, unless contributory factors in E or F can be shown.

In the present state of our knowledge of allergy it is comparatively easy for a trained allergist to prove beyond doubt the sensitivity of a person to substances found in his occupation. Unless proof of contact while at work with an allergen to which the allergic person is sensitive can be furnished, the employer should not be held.

E. In respiratory allergy there can be little doubt that acute infections, from simple colds to pneumonia, may greatly aggravate allergy from any cause. Compensation under this heading should be allowed only when the following conditions are satisfied:

1. Unusual exposure in line of duty while employed must have occurred.

2. Evidence of an acute infection within a few days of the exposure must be presented.

3. The allergic conditions must appear or be aggravated within a few weeks of the acute infection.

These requirements must be rigidly enforced. Furthermore, the maximum compensation under this group should be set arbitrarily. The acute infection should not be regarded as the cause of allergy but only as an aggravant. The employer's responsibility should therefore be limited.

Such compensation should include payment of loss of time from work and payment for treatment. Since infectious allergy may be very chronic, definite limits of liability should be set.

F. It was formerly believed that nervous factors, such as fright, accidents or undue tension, were important in the etiology of many allergic conditions. It is the opinion of the majority of this society that this view is no longer tenable and should not be considered in workmen's compensation. To avoid further confusion it would be well to exclude, by a statute or ruling, nervous factors as either a cause of or an influence on allergic conditions, and if allowed, to define its limits rigidly and to decide—

1. Whether accidents while employed should be considered as a cause of allergy.

2. If so, what maximum interval should be allowed between the accident and the onset of the allergy.

3. Whether unusual nervous tension during ordinary employment should be considered a cause of allergy.

If allowed by law, compensation should include payment for the time lost and payment for medical treatment, the limits of which should be arbitrarily set.

All of those in groups A and B suffer from unfortunate, unpredictable and unpreventable illness due to employment. As such they come well within the spirit of workmen's compensation. Likewise rigidly selected persons under classes C, E and F have had their suffering increased as a direct result of their employment and are entitled to appropriate compensation.

On the other hand, those in class D can show no connection between their illness and their employment and are not entitled to any compensation.

The majority of allergic sufferers belong in class D. The just and equitable claims of the small percentage in the other groups would be a very slight burden on industry. Laws and rules should be designed to exclude persons in class D, otherwise employers will be prejudiced against employing allergic persons. A well trained allergist should have no trouble in determining into which of the six groups an individual belongs.

DISCUSSION

DR. NATHAN B. HERMAN, Baltimore: It was stated in this report that "Likewise rigidly selected persons . . . have had their suffering increased as a direct result of their employment and are entitled to appropriate compensation." Unfortunately, compensation does not deal with suffering. Compensation deals with loss of time, with incapacitation. That alone would indicate that the framers of this report have not had much actual experience with the administration of compensation acts. The report medically is an excellent one, but administratively it possesses so many difficulties that I do not believe it would be of a great deal of help to compensation boards. After defining "allergy" the report says "It is, therefore, purely accidental." As soon as you introduce the word "accident" you get into great difficulties, indeed, in the administration. Under degree of exposure the report says that material may be encountered largely in occupation or largely out of occupation. Lawyers will argue endlessly and medical boards particularly about this administrative pitfall. The paragraph dealing with respiratory allergy also presents great difficulties and I doubt if it is feasible to follow the outline. Lastly a great deal of the responsibility devolves on adequately trained allergists. We have endless discussions and it is not easy to determine so specifically the sharp demarcations indicated by the report. We owe a real debt to the committee for bringing in the report. It is helpful and presents a skeleton on which we can group further ideas.

MR. THOMAS N. BARTLETT, Baltimore: The report gives a great deal of food for thought. Lawyers and claims men must deal with these cases from an insurance standpoint. Some schedule could be worked out in these cases to pay a certain compensation for a certain period of time by the employer under whom the man first manifests the allergic condition and disability. After the man gets over an attack he may not go back to work for the same employer. Even if he does go back to work for the same employer how far can you go in awarding compensation for a succession of periodic disablements? A man may be allergic to one thing or he may be allergic to half a dozen things all of which are contributing factors, some relating to his employment and some not. I think the report is a start toward some definite information and as a basis for some definite plan in compensable cases. From the medical point of view the problem is a big one from the preventive aspect.

MR. BENJAMIN MARCUS, Detroit: I am associate counsel of the U. A. W.-C. I. O. and I am interested in the problem of drafting workmen's compensation acts. The suggestions contained in this paper present certain serious problems about

drafting of workmen's compensation acts. If we treat every disease in a separate chapter we are going to have a law so unwieldy that it is going to be difficult, if not impossible, to administer. Two problems are raised: First, the question of limitation of liability in regard to allergic diseases. From the employee's point of view we are opposed to any special limitation on liability in relation to a specific disease. We believe that liability should be determined by the legislature in relation to all disabilities and that liability should govern no matter what the cause, whether it is allergy or dust disease or accident or anything else. The other point raised which I wish briefly to mention is the question of apportionment of liability. Perhaps those who drafted the report do not know that we have approximately fifty laws dealing with workmen's compensation and there are very many treatments as to just how liability is to be apportioned. Recommendations of the medical profession are useful and interesting and quite valuable, but there again the question of just how liability should be apportioned is not strictly a medical problem. It is one of legislation. While it may be advisable in certain cases to limit liability, from labor's point of view we want liability not to be apportioned. We want liability for the entire duration of the man's disability, as long as the disease contributed to the disability. Of course, there are certain practical limitations to that, but let me assure you that as long as you have good administration of an act you do not have to write the limitations into the act. The problem is one of administration, one of understanding, and is not one strictly of drafting legislation.

MR. VERNE A. ZIMMER, Washington, D. C.: Administratively it would be almost impossible to apply the theory in this report. We ought to evaluate or appraise how important this particular subject is in relation to the whole workmen's compensation scheme. Experience of twenty years in two or three of the jurisdictions in this country that have carried on under all inclusive occupational disease legislation shows that at the very most occupational disease does not produce more than 4 per cent of the total cost of workmen's compensation. That is not a tremendous problem. There is probably less difficulty on the whole for administrators of workmen's compensation to administer occupational disease cases than accident cases. You would think that one would require practically all the medical talent of the state in order to adjudicate a case of lead poisoning, dermatitis or some other commonly accepted occupational disease. That is not true. Very few jurisdictions have an array of specialists in allergy at the beck and call of the administrators in order to break down and classify those types of allergy. Actually in practice no jurisdiction will get enough volume of cases attributable to allergy to warrant any such attempted administrative refinement.

DR. D. J. GALBRAITH, Toronto: I agree with Mr. Zimmer that, from the administration standpoint, occupational disease does give very little trouble. The percentage is small, and with careful medical investigation of these cases we do not consider they are at all a serious problem, not nearly so much as accidents. I can agree with the chairman's early statement that medical evidence given before medical men does vary widely from medical evidence given to laymen. I think that has something to do with minimizing our troubles.

DR. HARRY LEE HUBER: This is a first report primarily as a guide and as a starting point from which we can work. About 10 per cent of those who are employed probably have some problem of allergy. Whether it is something that incapacitates them or not is a question. The word "suffering" as used means that these patients are incapacitated or partially incapacitated.

Control of Medical Testimony: The Minnesota Plan

DR. ERNEST M. HAMMES, St. Paul: In July 1940 Dr. B. S. Adams, president of the Minnesota State Medical Association, called a joint meeting of some members of our association and of the Minnesota State Bar Association to discuss the problem of unethical expert medical testimony. At that time it was felt that attempted legislative measures had improved but not solved the problem. A committee was appointed by the president with the approval of the counsel of the Minnesota State Medical Association. The committee was empowered to review those court cases in which medical testimony appeared to the court or to the attorneys or to some physician to have been so contradictory as to indicate that one or more of the medical witnesses appeared to be consciously deviating from the truth. The medical testimony under scrutiny was not to be confined to any particular type of legislation or to any particular court. It included all civil, criminal and personal injury cases and all cases tried before the industrial commission. The committee on medical testimony consisted of five members representing the various sections of the state. At their first meeting they determined the following policy:

1. That the judge or attorney or accusing physician must submit in writing a brief statement to the committee, giving the name of the physician to be investigated, and also the names of the principals of the trial, in order that a transcript of the entire testimony may be obtained.

2. That a transcript of the entire testimony of the case in question must be obtained and placed at the disposal of the committee. Only by this method will the committee be able to obtain a true knowledge of all the facts and assist it to arrive at an unbiased and just opinion.

3. To assist the committee, members of the state association in the various specialties must be willing to appear before the committee when requested to do so and express their opinion regarding the testimony in question.

Repeated complaints about medical testimony have been reported to the members of the committee but the accusing physicians were not willing to submit them in writing because of possible embarrassment. To obviate this the committee decided this year to keep the name of the accusing individual confidential.

The expense incurred to obtain a transcript of a three day trial in district court is approximately $100. In the industrial commission a similar transcript will cost about $75. The council of our state medical association has approved these expenditures. The committee has deemed it advisable to ask three outstanding specialists in the question involved to assist the committee in the investigation of a case. Their willing cooperation, sound judgment and unbiased advice have materially lessened the responsibilities of our committee. We also have the assistance of our state medical society attorney to avoid any possible legal complications.

Our committee has no disciplinary or judiciary power. In cases in which the testimony was of a mildly questionable character, more due to ignorance or overenthusiasm, the committee deemed it advisable to have one of its members discuss the problem with the accused physician and point out his delinquencies. This has proved satisfactory.

In cases of a flagrant character our committee submits a complete report with transcript to the state board of medical examiners. This board has judiciary power and can suspend or revoke the offending physician's license.

The late Associate Justice Royal A. Stone of the Minnesota Supreme Court suggested that this new plan should be given statewide publicity. Articles were published in the leading newspapers and news services throughout the state. Editorials have appeared frequently in our state medical journal. A detailed outline of this new undertaking was sent to every member of the state medical association and to every judge in the courts of our state. It was felt that the existence of such a committee would have a beneficial effect on the few medical men in our state who needed some guidance in their expert medical testimony.

In 1940, 1941 and during the spring of 1942 our committee received repeated complaints regarding medical expert testimony in our courts. Some were found unwarranted. The most satisfactory result noted is that during the present fall term of court not a single request has been made to any member of our committee to investigate the testimony of any medical witness. This, to say the least, is very encouraging.

J. W. Holloway Jr., director of the Bureau of Legal Medicine and Legislation of the American Medical Association, pointed out to Morris B. Mitchell, chairman of the committee of the judicial council of the Minnesota State Board Association,

that unless consideration should be given to the crooked lawyer as well as to the crooked medical expert little could be anticipated from this program. He proposed, in order to get down to the roots of the evil, that the bar association appoint a committee to which could be referred all cases that are called to the attention of the medical committee, with the idea in mind that if it should be found that the attorney who proffered the suspected testimony did so with a knowledge of its falsity then he should be disciplined along with the medical expert witness.

The Minnesota state and the local bar associations have committees to which our committee can refer any questionable case for investigation and disciplinary action. The judges of the supreme and district courts, as well as the members of the bar association, have been very cooperative and our committee greatly appreciates their assistance.

This program of the committee has been outlined in detail because of the many requests we have received regarding its inception and method of functioning.

DISCUSSION

Dr. Raymond Hussey, Baltimore: These committees in our medical society organization are extremely important. I presented the matter to our council in Maryland and asked it to consider the possibility of having such a committee in our organization. The council took it up with several of the justices in the courts of Maryland and they decided they didn't want it; that is, the judges decided they didn't want it. I should like to ask Dr. Hammes if he has had testimony from workmen's compensation cases presented to the committee.

Dr. Ernest M. Hammes, St. Paul: Just one.

Dr. Dean Clark, Washington, D. C.: Can you give us an idea about what the volume of the work of the committee is and about how many cases you handle?

Dr. Hammes: We have had few cases, and those have been of a mild character. Many of the young men who get to court are afraid to say "I don't know" when asked a question. That is purely a lack of experience in court, much more so than trying to evade the truth. There is another group who feel that they must help the attorney win his case, and they become so overenthusiastic that they deviate just a little, probably unconsciously. Then we have those who are frank out and out. We had such a one that was referred to the state board of medical examiners. The board advised him that unless his attitude changed it would take drastic action. One case like that does wonders throughout the state.

Workmen's Compensation: The Shape of Things to Come

Mr. Henry D. Sayer, New York: Compensation laws are not identical. But there is one unfailing rule underlying all compensation laws—the rule that compensation will be paid regardless of fault as a cause of injury. The liability of the employer is certain, but it is not unlimited. Monetary benefits are fixed at limits that are measured by the loss of time or of wage earning capacity. They do not include what might be termed "punitive damages"; they take no account of pain and suffering, mental anguish or any of those other conditions that would be sympathetically urged on juries. And, in addition to payment for loss of time or earning capacity, the compensation system provides for the furnishing of medical and surgical care and treatment at the expense of the employer. This was not the obligation of the employer under the old employers' liability laws. His only liability for medical care was in case of a recovery for damages by the employee, who might in such case include in his suit the value of the medical services for which he had obligated himself.

The compensation laws have been declared by the courts in many states to be beneficial statutes, that is, they are recognized as having been enacted for the benefit of the workers, and as beneficial statutes the courts will strive to give full effect to their beneficial provisions and will interpret them liberally. Public opinion and policy will demand that all who have any duties under those statutes shall do their full part to make effective their beneficial provisions. Among the groups whose participation in the system is essential are the employers, the insurance carriers and the physicians. The interest of each group is different, yet they have much in common. The employer, of course, has had a keen interest in compensation right from the first. The insurance carrier too has been keenly alive to its rights and obligations under the law.

From the first day of the law and from the first occurrence of an accident, the doctor has been a force to recognize. Doctors are commonly inclined to resent the making of paper reports to employers or insurance companies and to the public authorities. The first questions that naturally arise in the mind of the insurance examiner are Who is the doctor, for what is he treating, how long will disability extend and what will be the ultimate result? On the true answers to these questions depend in large measure the position of the insurance company toward accepting liability and determining the preliminary reserve to be set up on the company's books, so that the money to pay the claim to its ultimate may be set aside and always made available. This is not only the obligation of the company under its policy contract but is also its legal responsibility under the insurance laws of most states. Continuing reports of disability provide the basis for continuing payments of compensation. Thus reports are a prime necessity if the compensation law is to be fairly and adequately administered.

If a doctor would practice his profession in the industrial medical field, there are many things that he must do. He must be something of an engineer, for his talents must be employed in an advisory way in the prevention of accidents as well as directly in the treatment of injuries after they have occurred. He must know something of industrial processes and methods, otherwise the histories he obtains from injured workers may sometimes be unintelligible to him or may lead to wrong conclusions. He must be something of a statistician if he would attempt to draw conclusions in regard to types of injuries and their causes and their end results. And today the industrial doctor must be something of a public and industrial health expert.

As originally introduced in this country, workmen's compensation laws were generally limited in application to accidental injuries, just as the law was originally in England. But early in the compensation era there began a movement to provide compensation for disability or death due to occupational disease. In some thirty or more states there is now coverage for occupational diseases in some form. Compensation for specific occupational disease is the natural corollary of compensation for accident without fault. The assumed risk of accident in a hazardous employment, having been abolished as a defense in compensation, there would seem to be no good reason to permit the inherent hazard of diseases to be a bar to compensation for sickness or death from a disease that is a characteristic of the employment. It is reasonable to expect that as compensation laws shape up in the future they will in time all provide coverage for industrial diseases. Almost insuperable difficulties in defining the coverage of the law for occupational diseases have been encountered, however, because of the impossibility of exactly defining the term "occupational disease." Not all diseases affecting or acquired by workers are occupational diseases; not even all diseases that occur in the course of employment. That cannot be too strongly emphasized. Nor is an occupational disease law to be regarded as the employer's contribution to a general health law for workers. In an effort to define and delimit properly the occupational disease coverage there have developed two general methods, one the so-called "schedule law," and the other the "open" or "all inclusive law." The schedule law sets forth in a list embodied in the law all the diseases or disease conditions for which liability is sought to be established under the law. These diseases are frequently related in the law to specific working conditions or processes in which there is a characteristic hazard of the specific disease. Thus, for example, lead poisoning is a disease occurring among men who work with or handle or are exposed to lead in some form. If a man who works with lead develops lead poisoning, it will be conclusively presumed that he got the poisoning in his employment. If a person, however, develops lead poisoning and

it is conclusively shown that he does not handle lead or work with it and is in no way exposed to lead or lead fumes, it cannot be said that his lead poisoning is an occupational disease, and it must be caused by some exposure outside his employment.

What has been said of lead may be said equally of arsenic, mercury, benzene and any of the other toxic or harmful substances enumerated in the law.

The other common method of providing coverage for occupational diseases set forth in some laws is the general or all inclusive coverage, under which method specific diseases or disease conditions are not named in the law, but the law provisions include occupational disease by vague, general language or by attempted definition. I say "attempted definition," because there is no such thing as a standard or exact definition. Seemingly, this type of law would be more easily administered, for the administrative authority would not seem to be bound by the rigid restrictions and limitations of the schedule form of law. But that is not necessarily the case, as there are other tests that must be applied when diseases do not fall within the common category of "occupational." Such common and deadly diseases as pneumonia, tuberculosis and heart disease occur among workers just as they do among the nonindustrial people. When then, if ever, may such diseases be regarded as occupational? The questions that may arise in connection with such diseases are difficult and may lead to long, expensive and discouraging litigation. In the one case both employers and workers are fully informed of the disease conditions for which the one is permitted to claim and for which the other is liable. The coverage is not so broad, because of its certainty and definite nature. In the other case the coverage may be theoretically more broad, but it is shrouded in such vagueness and uncertainty that the right to compensation may not be determined until after lengthy hearings and protracted legal process.

These seem to be the alternatives that present themselves in the development of occupational disease legislation up to the present time. The medical profession can contribute to the study of the fairest and most satisfactory method of providing coverage for occupational diseases in the shape of things to come. It is a question that should not be left wholly to the lawyers or to the industrialists or to labor, although the views of all these parties must be taken into account. Those views should be based on informed opinion, and the information to be supplied by the doctors could be most impressive. The great problem, the real problem of the future, is not in the payment of money benefits. It is in the prevention of accidents and the furnishing of healthful working conditions. Great strides have been made in the field of safety during the past twenty-five years. That field is the particular one of the engineer. Insurance will fail industry which it serves, medicine will fail the public to which it owes endless allegiance, if they do not work together for the solution of these problems.

Practical Problems in Framing Occupational Disease Legislation

ROUND TABLE DISCUSSION

DR. KENNETH MARKUSON, Lansing, Mich.: The workmen's compensation act in the state of Michigan is entirely under the administration of the Michigan Department of Labor. At the present time Michigan has a schedule law of thirty-one diseases. In my opinion it is not a good law, because there are certain inequalities. A workman has to be extremely fortunate to be exposed to one of the thirty-one scheduled diseases. The proposal which I believe will be presented at the present session of the legislature is for an all coverage law. I think that is a fair law if properly administered, but I do feel that there should be proof of exposure along with clinical findings. The law as it now stands provides payments for medical care for a period of ninety days. Many of the industries are paying for continued medical care, feeling that it is their responsibility although not a legal one. After the present emergency, when the labor market is going to be much more open than it is today, a lot of men are going to be out of work, principally on account of compensation laws. The man with physical defects, with mental defects, whatever they may be, is going to be denied employment.

DR. BARNEY J. HEIN, Toledo, Ohio: Ohio has an occupational disease law. It was passed in 1939 and it was the result of several court decisions by the Ohio Supreme Court, in which certain occupational diseases were recognized. This law specifies twenty-two different diseases and then goes on to say "All other occupational diseases. An occupational disease is a disease peculiar to the particular industrial process, trade or occupation and to which an employee is not ordinarily subjected or exposed outside of or away from his employment." That certainly takes in everything. In the way of administration, the Industrial Commission of Ohio has a silicosis board consisting of three doctors, one a roentgenologist, another a specialist in chest diseases and the third an internist. Cases of silicosis are referred to this committee. Questions about other occupational diseases arise so a list of doctors has been selected throughout the state based on qualifications. They are selected by the dean of Ohio State University, the Industrial Commission of Ohio and by the department of health. Any employee has a right to appeal to this board for final discussion.

DR. HUSSEY: In Maryland our law states that the medical board is to investigate and hear controversial medical issues. We actually go into the plants and see for ourselves what the situation is. We accomplish the same thing that we do in hospital wards when certain clinical situations demand study and we call on consultants. We cannot be physicians and cover all the other technical fields. We must have the cooperation of the engineer. We must be possessed of sufficient knowledge to direct the effort of the engineer. The engineer is helping us, not directing us. Because relatively few men have realized that situation the engineer has taken the initiative. We cannot define occupational disease. The subject of nosology in medical science embraces the classification of disease. The basis for the classification of disease is etiology. As we understand the pathogenesis of the disease we are in a position to express an opinion. Our economists, our legislators and our employers must provide the means for the proper care of the workman, but it is up to the medical persons to decide what the disease is, what the etiology is and whether that etiologic agent is one that is associated with the processes involved in his work. The difficulty arises in getting the facts and fitting those facts into the definition of accident. In medicine etiology is the basis of our knowledge of disease, and injury is any change that takes place in the body as a result of the effect of an etiologic agent.

DR. D. J. GALBRAITH, Toronto: In our setup there is no appeal from the decision of the board. We administer the act. Appeal is not allowed on point of law or fact. Medical aid is entirely in the hands of the board. We feel that the entire responsibility for the injured man is ours, from accident prevention through his medical care and treatment, until the man is back on a job again or is compensated for the loss which he has sustained. Under an act of that kind, many of your difficulties are removed. We have still the schedule type of occupational disease coverage. We would rather have the blanket coverage, but under the act as we have it we have a great deal of leeway. We can call these conditions accidents, and as such we have found that both the employers and the workmen readily give approval. Our government some years ago came to the conclusion that the majority of the problems that came before a workmen's compensation board were medical problems, and as such they felt that a medical man should be placed on that commission. When the next vacancy arose another doctor was appointed, so that we then had a commission composed of a manufacturer, an industrialist and two physicians. There is now a vacancy on the board. In administering an act of this kind, medical men have an advantage. You have injured men. You have men suffering from industrial diseases. Every x-ray film in the province of Ontario is sent to our board immediately and is examined by the most competent radiologist in the province. If he finds that postoperative films do not show adequate reduction he takes the film immediately to our chief surgeon, whom we recently appointed because we felt that he was one of the outstanding orthopedic surgeons in the country. Between them they decide what should be done for that man and it is done.

We remove the patient definitely from the hands of the incompetent doctor and put him in the hands of the man who we feel is most competent. The medical profession, with which this was discussed from one end of the province to the other, has so far given us nothing but kindly comments on the results. Some of the outstanding traumatic surgeons have made slips which we have discovered and brought to their attention. They thank us for it and generally commend the policy. We know that we shall get objections from the weaker men, the men who are not doing so good a job, but the medical profession, the Ontario Medical Association, discussed this with me before the plan was put into operation and gave us the green light. Certainly there are advantages for the medical profession and for the workman himself. In the early days of workmen's compensation in the province the Ontario Medical Association appointed a Committee on Problems of Workmen's Compensation. The medical profession was to take all its grief to this committee and it was to present it to the board. Last year the chairman of that committee came to me beforehand, before the annual meeting, and he said "I am going to have a very nice report this year. During the whole year there has not been one single complaint from the medical profession with regard to the work of the compensation board." He said "I think we shall have to dismiss our committee." That is the committee you are talking about.

Mr. Voyta Wrabetz, Madison, Wis.: In Wisconsin we have covered all diseases, whether occupational or not, and the job of administration and the costs have been so small that we sometimes wonder what in the world you are arguing about. Certainly any disease, I don't care what it is, if it is caused by any occupation, causes just as much wage loss, just as much hardship to the worker as if it were a typical occupational disease. There is no justifiable reason for merely placing on the compensable list only those diseases that stand out as typically occupational. We have covered in our law all diseases of occupation since 1919, probably an experience as long as any other state. The over-all cost for the past twenty-two years has been 3.3 per cent of the cost of all compensation for accidents and diseases. Certainly that isn't a terrific load. That cost probably is larger than it should be and than it will be in the future. We have met the problem frankly, without attempting to leave out so-called accrual disabilities and we met it at a time when it was really critical, at the beginning of the depression when symptoms were magnified much by lack of employment opportunities and every one regarded the problem somewhat in a hysterical state of mind. In our desire not to do harm we paid compensation in many cases in which not a cent should have been paid. Many cases were settled on the basis of partial disability, 20, 30, 40, 50 per cent that should never have been compromised at all. We know in the light of our experience today that there is hardly any such thing as partial disability in the case of silicosis. It is either a total disability or none at all. These cases were settled on an overliberal basis in the years 1933, '34 and '35. That problem will never be met again in Wisconsin. From the standpoint of prevention and of minimizing the effects of disease you may have to have some special approach to some special problem, but from the standpoint of compensation there is no reason for you to have a special chapter in your schedule books covering occupational diseases. Bring them in like any other disability. It is very essential that a really constructive program of physical examinations be instituted so that the rights of workers may be protected. But above all no compensation law should be written or any amendment put into the law in the belief that somebody is going to be incompetent or not have the proper concept of the law to administer it properly. Whenever we enact a law we should assume that the people who are going to administer it are competent and if they are not that is the fault of your state. You should develop a tradition of appointment to offices of this kind on a nonpolitical basis and administrators should be retained in office long enough so that they are familiar with the problems with which they have to deal and they should not be kicked out every time a new governor is elected.

Mr. Samuel Kaltman, New York: What we need is some one who will be able to determine the question Is that disease due to the employment? Is it to be done by having a doctor who perhaps knows how to determine that question from a medical point of view? Is it to be done by a layman appointed without political considerations and with sufficient tenure of office to be able to learn those determinative factors or is it to be done by a lawyer who might know the legal aspects and will have to learn the medical aspects? I don't care how it is done, but they must be able to determine whether or not that disease is due to the occupation. I don't care whether you have a schedule or whether you have an all inclusive occupational disease law, the crux of the situation is Is it due to the employment? In New York we deal with any number of allegations of tuberculosis, heart disease and kidney disease. The whole gamut of systemic diseases is alleged to be due to occupational exposure. Some of them may be. I know from experience that many of them are not. The doctors can assist the administrators tremendously in making the determination as to whether the disease in question is due to the employment. We have heard some statistics to the effect that not very much is involved and therefore there is no problem. If there is anything we can do to eliminate those diseases which are due to occupation we must and should do it immediately. The salvation for the worker is in prevention. We as insurance carriers, you as doctors, the administrators of the laws, labor—all of us can get together and plan some definite action whereby first we determine what effects are due to employment and, secondly, we prevent them from occurring.

January 12—Afternoon

Dr. Robert T. Legge, Berkeley, Calif., Presiding

INDUSTRIAL MEDICAL PRACTICE AND THE EMERGENCY

Correlation of Industrial Medical Organization with Community Emergency

Dr. Ward L. Mould, Washington, D. C.: When the national emergency was first declared by the President in 1941, he created the Office of Civilian Defense and made that agency responsible for the development of plans for the protection of life and property against enemy attack. This organization was to be correlated with the armed forces through a joint board representing the Army, Navy and Office of Civilian Defense. Plants manufacturing war material were made the responsibility of the Internal Security Division of the Office of the Provost Marshal General, and the responsibility was decentralized into the Internal Security Divisions of the nine service commands. The Navy likewise was given responsibility for plants in which it was concerned.

Because of the placing of responsibility in the Office of the Provost Marshal General, it is not surprising that the principal consideration in the internal security administration was in the policing and guarding of plants, and it is not surprising that, even in setting up programs to cope with disasters, again the emphasis has been placed on the security of information, the security of plant property and the security of records. Plans which were to provide for the care of people who might be injured in such catastrophes were deplorably weak. Plants have set up organizations designed to provide first aid for people who might be injured in catastrophes, but they have failed to realize that no plant organization will make that plant self sufficient, that the minute anybody is so seriously injured that he requires hospitalization or the services of a coroner the plant has ceased to be a self-sufficient organization. It is necessary that there be a correlation between the plant medical department in planning for the care of a large number of injured people who might be injured in a disaster, with the local organizations responsible for the care of civilian casualties due to air raids.

Recognizing the weakness of the internal security program as it applied to catastrophes, the Office of Civilian Defense and the Internal Security Division in the Provost Marshall General's Office and in the nine service commands have worked out a

program jointly for adoption by plant medical departments where it is feasible. Certainly the plant medical department is not set up to care for a lot of seriously injured persons at one time. Its personnel is limited. The number of personnel even in a good plant medical department need not be particularly numerous to cope with the problems of industrial medicine, and if a large number of people are injured at one time the deficiencies of plant medical departments would be greatly magnified. Facilities are a little better. If one surveys industrial medical facilities one finds that very few plants have their own hospitals and that only 20 per cent of plants have made arrangements for the hospitalization of industrial accident victims. First aid rooms are provided in a goodly number of plants, but still there are about 30 per cent that do not have first aid rooms. Plants that have dispensaries are fortunate in that they then have a facility for the treatment of the industrial accident victim, but such rooms are not ordinarily adaptable to the care of a large number of people at one time. They are small. They are compartmented. They perhaps have an eye chart, a gooseneck lamp, an examining table, an examining chair and a couple of beds to one side where persons can be put for a little while until transportation can be arranged, but they are not ordinarily adapted to the care of many persons. So we have felt that an entirely different type of organization should be developed within the plant for the care of persons injured in a plant catastrophe.

We have conducted surveys of hospitals in cities to determine the possibility of their expansion of bed capacity, and not only in the cities themselves but in outlying areas, so that, in the event of an emergency, patients occupying city institutions would be evacuated to other communities, thereby making city institutional beds available. We have conducted, in cooperation with the Public Health Service, a program for the organization of blood banks in hospitals. Money made available to the Public Health Service and jointly administered by it and by the Office of Civilian Defense has been awarded to about one hundred and fifty hospitals for the creation of blood banks, in return for which the hospitals have agreed to accumulate 1 unit of plasma per hospital bed. In addition to this plasma, which is a steadily growing pool, we have bought outright from the processors dried and frozen plasma prepared from blood collected by the Red Cross. This plasma has been placed in strategic locations all over the country. Not every hospital, of course, has blood within its walls or in its pharmacy, but all hospitals have access to this blood through its local organization of civilian defense. While the blood is primarily accumulated and stored for the treatment of civilians injured in enemy action, it may be used in any emergency.

Because we have developed our organization along these lines, it was felt by the Office of Civilian Defense and by the military authorities that, where the organization was properly and well developed, with the facilities available in the community and under the central administrative direction of the local chief of emergency medical service, if the plant medical department and the community emergency medical service could get together and work out a joint program of mutual assistance, much confusion might be avoided in the event of a plant catastrophe. Of course, the whole civilian defense program at the local level is a volunteer effort, and it is to be expected, therefore, that the development of our program is spotty, but for the most part there has been a pretty good development of emergency medical service.

The plan that is developed by the plant medical department in cooperation with the local emergency medical service should provide for two contingencies: first, a catastrophe which is localized within the plant, in which case all the resources of the community can be made available to the plant; and it should also provide for a catastrophe in which the plant and the community are involved, in which there has to be an apportionment of medical service between the two. The plan should provide for the hospitalization of people who are injured. It is necessary, in the administration of such a responsibility as the hospitalization of people, that patients be spread through as many hospitals as possible, so that one is not going to be overloaded while others are twiddling their thumbs. The plan should also provide for efficient ambulance transport, which in many instances has been pretty well tied together by the local emergency medical organization, and in communities where our organization has been well developed the local chief has not only surveyed the facilities which are available in the community but has determined the possibilities for the emergency expansion, by the conversion of panel-body trucks, and other similar vehicles.

One point that causes, I think, an undue amount of confusion in catastrophes is the matter of identification of casualties. In any plant disaster a careful record must be kept not only of people who are injured but of people who are uninjured who leave the plant. Unless this is done it will be a very difficult matter to determine the number and the names of the missing.

The identification badges that are used in most plants will assist materially in determining the identity of people who may be unconscious. Too frequently one finds that, in the administration of first aid in the plant medical department or in the plant yard or at some point, the patient is very carefully disrobed, and with his clothes go his identification badge. He is transported in an unconscious state to an unknown hospital in an unknown community. In a recent episode, to quote a specific example, three weeks after the catastrophe, patients were turning up who were presumed dead. They had been transported in unknown numbers to unknown hospitals in unknown cities in unknown ambulances. While this did not detract necessarily from the quality of the medical care which they received, it certainly did not contribute to the improvement of public morale.

Another phase of catastrophe planning which is frequently overlooked is that inevitably some people are going to be killed, if the catastrophe is of any consequence, and we fail to make provision for people who are killed. There should be a room designated to which they can be taken and left until arrangements can be made for transportation to mortuaries or morgues. While it is not necessary that they be identified before they leave the plant property, it is necessary that all identifying data should be on the person when the body is moved.

Our civilian defense scheme of emergency medical service does not differ materially from the program of the Army in its care of casualties. We feel that treatment on the spot is very necessary and that that treatment should be given by qualified persons.

In order to filter the casualties, to prevent an overload of patients with minor injuries and patients with hysteria arriving at the admitting office of the hospital, we have established what we call casualty stations where these lesser degrees of injury can be cared for. The casualty station is ideally a big, open room. It is not equipped for surgical procedures. It is set up primarily for the administration of first aid and the care of minor injuries.

We fail frequently to consider the importance of sanitation services in plant catastrophes, and yet dangers to community and plant sanitation are inherent in all disasters. Explosions that will cause fractures of water mains and sewer pipes, fires, fire fighting operations, may cause such a drop of water pressure as to cause a back siphonage of sewage into potable water supplies. Many plants have their own water supply which is independent of that of the community, and frequently it is not a potable supply. All of these things must be taken into consideration. Following a catastrophe of any degree at all it would probably be wise to obtain the assistance of the sanitary engineer of the local health or water department to determine whether there is a sanitation hazard in the plant as a result of the accident.

One thing which we have been working on diligently in the Office of Civilian Defense is the matter of admission of physicians to assigned plants, an assigned plant being one which has been turned over to the War or Navy Department for the security of the plant. Visiting in such plants is rigidly controlled, and properly so, but in November the War Department emphasized its stand on visitors' clearance and placed responsibility for the admission of personnel on the plant management but said that special provision should be made for the admission of policemen, firemen and physicians to the plant in time of disaster. We have been working with the various service com-

mands to develop a procedure whereby selected members of our organization, of our local organization, would be identified, following investigation by the service command, by passes that would be issued by the Office of Civilian Defense and countersigned by the security officers of the War Department.

Last, but not least, is the matter of responsibility for people who are injured, who are carrying on civilian protection duty in plants. I know plants which have several thousand men engaged in plant protection activities and the activities are in some instances, hazardous. Auxiliary firemen, in their training, climb up ladders, scale walls and so on, laying themselves open to accidents which will necessitate medical care and hospitalization. Some categories of plant protection workers—when I say that I am not referring to guards—are employees during the time they are carrying on their plant protection activity. The Wage and Hour Division of the Department of Labor has ruled that, if the activity is carried on during the usual working hours of the employee, he must be paid wages for his activity, and, if he is paid wages, it is presumed that he will be covered by the compensation law obtaining in the state. If he carries on his activity outside his regular working hours, in some instances he will and in some instances he will not be an employee for whom wages must be paid, depending somewhat on who the directing agency is within the plant having charge of the civilian protection activity of the plant. If he is a member of the local citizen's defense corps, which is the protection organization of the community under the Office of Civilian Defense, and he is assigned to the plant, he will not be an employee of the plant, in that wages do not have to be paid for his activity as a civilian defense worker. In February of last year a special allocation was made from the President's Emergency Fund to the Federal Security Agency to provide for the medical care and other benefits to civilians who were injured as a result of enemy action. As no specific provision was made for civilian defense workers, no coverage was furnished such persons during drills and exercise, though they would be covered in the event of injuries sustained in an air raid by virtue of the fact they were civilians. To provide for financial protection and medical care for civilian defense workers injured in training exercises and other drills of the Office of Civilian Defense, a supplemental allocation was made, to be administered by the Federal Security Agency. The manner in which this fund is to be administered has not been completely worked out, but the regulations which are now being prepared will, I think, be very specific in providing assistance to members of the local citizen's defense corps who may be injured while on active civilian protection duty. While there may be some adjustment made for people engaged in such activities but not actually members of the corps, I don't think that any specific provision will be made for such situations. We feel, therefore, that it is important that people who are engaged in passive plant protection as auxiliary firemen, auxiliary policemen, air raid wardens and so on, be made members of the local citizen's defense corps, so, in the event they become injured in the performance of their functions they will be covered by some type of program insuring medical care and certain other disability benefits.

The Health and Safety Program of the U. S. Maritime Commission and the U. S. Navy in Contract Shipyards

MR. PHILIP DRINKER, Boston: This article appears in full in this issue, page 822.

DISCUSSION

DR. DEAN A. CLARK, Washington, D. C.: Can you tell us something of the way in which the unions were brought in on your industrial health and safety plans?

MR. PHILIP DRINKER, Boston: The survey we made last summer was first suggested before the so-called Ship Stabilization Committee meeting in New York last July. At that meeting were representatives from the government, from the labor unions and from management. Labor knew of the projected survey last summer. They all expressed approval. When we had made the rounds, I met again with the C. I. O. and with the A. F. of L. and told them the results of the survey and the essential recommendations and changes we were going to ask for. We were perfectly frank with them. We told them that one of the things we thought was not handled properly was the total lack, in some districts, of preplacement physical examinations. Literally there are none. We told them why we wanted them. They agreed that a change was in order and should be made, which was quite a revolutionary step. How quickly we can put through the benefits of that change in attitude has yet to be proved, but we have every hope it will be. When we survey the yards, yard by yard, we don't always get in touch with the union men because of the time that that would consume, but we take care that the unions themselves know we are coming. There hasn't been a single step in any of this but that the union has been appraised fully.

STREAMLINING INDUSTRIAL MEDICAL SERVICE

How to Get Along with Less Help

DR. EDWARD C. HOLMBLAD, Chicago: This article appears in full in this issue, page 820.

Outline of Procedure for Nurses in Industry

A report of the Council on Industrial Health, American Medical Association, presented by Dr. Orlen J. Johnson, Chicago, will appear in full in THE JOURNAL.

Putting Your Medical Records to Work

DR. M. H. MANSON, New York: If some aspect of the work must suffer it is usually the records. The prospective employee should encounter the physician first in industry and does so in many instances. It is difficult to estimate at the present time the percentage of workers in industry who receive preplacement examination. In 1932 the American College of Surgeons reported preplacement examinations in 63 per cent of 925 industries studied, in 1939 the National Industrial Conference Board 84.4 per cent and in 1940 in a study made by the National Association of Manufacturers, 72 per cent was reported. With thousands of people being added to payrolls practically overnight, the number of preemployment or preplacement examinations now is considerably less than the incidence indicated in these studies.

What can we learn from the results of preemployment examination and to what use can we put this knowledge? With few exceptions there are no analyses made other than a percentage calculation of rejections, which varies from 2 to 5 per cent in most industries in normal times. We have gained considerable information about the physical status of a specific group of our population as the result of analyses of selective service examinations both in the last and the present great war. These data are not comparable to standards and methods of examination in industry, nor are they as inclusive in scope, considering industry's wide spread of age groups, racial differences and sex differences. Much significant information is buried in the medical files of industry concerning the medical status of our population at the time they enter employment which should be currently and periodically analyzed and compared. Wider usage of preplacement medical records will give us a base line of incidence of actual or incipient medical conditions for specific industries for which these industries will ultimately pay millions of dollars either directly in sick and accident benefits or indirectly as a result of lost time. A compilation of such information would also provide a more accurate picture of the nation's health, geographically, than some widely quoted studies such as have been made by WPA workers. I should like to see some group sponsor and provide the mechanism for uniform studies and compilations of similar data. Work sheets for this purpose are simple to devise and put into use.

Development and morbidity of newly arising conditions should be similarly studied by tabulation and analyses through periodic health audits of individual employees. The term health audit is used because a periodic medical appraisal is, or should be, far more than a physical examination. Work sheets identical with, or similar to, preplacement analyses may be used to facili-

tate comparisons. The 1941 report on industrial health practice made by the National Association of Manufacturers indicated that only 21 per cent of the 2,064 industrial establishments studied conducted periodic physical examinations. According to some observers cardiovascular diseases occur with undue frequency in occupations which demand severe physical exercise. The most recent and perhaps only study of death rates by occupations was that made by Whitney in 1936, which revealed that the rate for males from all causes, corrected for variation in age, was 623 per hundred thousand for agricultural workers, 775 for clerical workers, 829 for skilled industrial workers, 1,009 for semiskilled industrial workers and 1,448 for unskilled workers. This undoubtedly indicates a field for some detailed study as to causes and methods of prevention, and further continuous studies of a similar type are certainly indicated at the present time.

Sickness is responsible for about 85 per cent of absences, off the job accidents approximately 10 per cent and on the job accidents 5 per cent. Illness causes fifteen to twenty times as much absenteeism and about seven times as much lost time from work as industrial accidents. Reflecting that industrial accidents are responsible for about one billion five hundred million man hours loss of production each year, the importance of illness is tremendous. Absenteeism is greater following holidays and at the beginning of hunting seasons and is decreased on pay days and days when overtime rates are in effect, and it is often reduced by the mere knowledge that a study is being made of the subject. Absenteeism is greater in plants where employees are paid for all absences. In one shop the rate increased over 300 per cent when pay was given for the first two days of absence. I do not believe that there is any one answer to absenteeism.

Illness absences are said to be at least three times more important economically than the actual number of days lost because of reduced efficiency in the developmental and recuperative stages of the illness. It has been stated that every employee loses an average of nine and one-half working days each year, the rate being twelve days for women and seven days for men. With the increasing displacement of men by women in industry and the prophesied addition of thirteen million workers to plants manufacturing war material, the importance of the problem of absenteeism due to illness can well be visualized.

Before anything can be done toward solving this costly and vital problem, an absenteeism analysis is essential such as the report of studies in personnel policy (number 46) made by the National Industrial Conference Board entitled "Reducing Absenteeism." We in the New York Telephone Company employ the following procedure in cases of absenteeism due to illness: On the third day of any absence a representative from the disability bureau of our traffic department visits the employee (telephone operator) at her home. At this time it is ascertained whether or not the employee is under proper medical care and a medical certificate is left to be forwarded to our medical department by the employee's private physician. The visitor completes a report which indicates, if known, the nature of illness and other pertinent information. From this, together with a report from our medical department, a card index is built which indicates the frequency of absences and the nature of the disabilities. Every employee having six or more absences in any given six months period is referred to the medical department for special examination (this is termed a frequent illness visit and is obligatory) to determine whether or not any corrective measures are indicated and for advice on general or specific health problems. The value of keeping a constant check on absences may be better visualized by considering a plant employing ten thousand workers, forty-eight hours a week. They can expect a loss of approximately eighty thousand man days this year, or two hundred and eighty employees absent every day. If the plant is employing more women than usual or inexperienced men, the loss will be one hundred thousand man days, or three hundred and fifty absences each day.

The question of toxic hazards and exposures is of paramount importance because of the continuing use of substitutes and new materials in manufacture. The apparent interruption in the downward trend of tuberculosis certainly deserves careful consideration.

The work of the medical department is divided into two categories, administrative and diagnostic. A code is used for the various subdivisions in each category. Administrative coding makes provision for tabulating preplacement examinations, employee examinations of all types, accidents, sickness, consultations and other interviews, x-ray examinations, laboratory examinations and other services such as injections or treatment, the latter either at the behest of the employee's private physician or of an emergency nature. The diagnostic code makes provision for diagnoses according to systems, such as respiratory, digestive, genitourinary, endocrine, circulatory and special sense organs, plus a diagnostic classification for injuries. The combined coding is transferred from the individual employee record to a work sheet on which is also indicated other information such as original or repeat visits and the disposition of the patient. This information is then transferred to punch cards by means of the Hollerith machines. At any given period these cards may be sorted to obtain any desired combination of information. For example, one may compare the number of absences for more or less than seven days due to influenza or any other illness for any given period. This method of tabulating the experience of the medical department has been desirable and helpful.

We need more and better medical records, more widespread use of these records applied to our problems in industry, and improved interchange of experience to aid production.

Processing Industrial Physical Examinations

DR. FRED B. WISHARD, Anderson, Ind.: This article appears in full in this issue, page 810.

DISCUSSION

MEMBER: I should like to ask Dr. Wishard about the expense of the examination, if it has ever been figured out.

DR. FRED B. WISHARD, Anderson, Ind.: We never figured it out. We have made some calculations with regard to our total cost. I think it runs about 6 or 7 cents, but the amount of the examination would be, roughly, $2. It costs 97 cents to use, process and store a 14 by 17 x-ray film.

MEMBER: What percentage of women do you examine in relation to men? Do you have a duplicate setup or can you use the same one?

DR. WISHARD: We don't examine women to any appreciable degree. We do check vision, chests, blood pressure and a blood test.

MEMBER: Do you do urinalyses on your preplacement examination?

DR. WISHARD: We do not. We probably would be better off if we did.

Resuscitation: A Review and Demonstration

DR. HART E. FISHER, Chicago: A demonstration of lantern slides.

JANUARY 12—AFTERNOON

DR. RAYMOND HUSSEY, Baltimore, Presiding

SYMPOSIUM ON REHABILITATION

Rehabilitation—Recent Developments in Connecticut

DR. JAMES H. BIRAM, Hartford, Conn.: We have had in Connecticut since 1920 a vocational rehabilitation service which supplemented workmen's compensation and had for its object the training of injured employees and fitting them again for industry, and in supplying artificial appliances and training in their use. Somewhat over a year ago clinics were established in conjunction with the State Medical Society, the Manufacturer's Association of Connecticut and the Departments of Psychology at Yale and Trinity. Handicapped individuals were evaluated and were presented before groups of manufacturers or their representatives. This was not a true rehabilitation program but more for reeducation and job placement, depending on interested charitably inclined employers. With the shortage of labor, most of this group were placed. This plan found

employment for a considerable number of handicapped individuals. One day last September I received a call from the employment office and found that on that day it had one hundred and fifty requisitions, that fifty-four had applied for work and my examiners had turned down twenty-four and had taken waivers on most of the remainder. On investigation I found that ten had been rigidly rejected for machine jobs because of varicose veins. I arranged time to examine all questionable rejections and found that varicose veins was second in causes for rejection, just below cardiovascular disease and above visual defects. A considerable proportion of these could be salvaged by the simple operation of ligation and injection of the saphenous vein.

How was this to be accomplished? It was not entirely the manufacturer's responsibility nor the state's, as these people came from all over the country. After unsuccessful attempts to interest various groups in this venture I finally called Mr. Edward Chester, director of vocational rehabilitation at the state board of education, and stated the trouble to him. In a few days a meeting attended by fifty representatives of various organizations was held. The representatives were informed as to our undertaking, shown its need, and invited to express their opinions. Because each group saw that this venture vitally affected them there was complete cooperation.

Mr. Chester, as director of rehabilitation in the state, was authorized to serve as chairman of a committee and to appoint a small advisory committee, each member of which was to be chairman of a larger group representing his special interest. It was decided that each committee was to meet the following Wednesday morning at the Hartford Club and have a definite proposition ready so the chairmen could meet that same afternoon to plan for carrying out the program. This was done, and the Connecticut Wartime Manpower Rehabilitation Committee started to function in its advisory capacity to the Rehabilitation Division of the State Department of Education.

At this meeting it was determined:

A. That at present only defects in the preemployment group that needed relatively short treatment or evaluation should be attempted. As a guide, the following conditions were named: (1) cardiovascular disease, (2) varicose veins, (3) hernia, (4) vision, (5) minor orthopedic defects, (6) diabetes, (7) miscellaneous.

B. That candidates for rehabilitation were to come from: (1) plant physicians, (2) rehabilitation offices set up in the different industrial centers of the state; in this case plant physicians or a group of consultants would determine the advisability of making a correction of the disability.

C. That a statewide panel of doctors be set up to secure competent men to carry out the necessary procedures. That names for consideration on this panel were to be submitted by: (1) plant medical directors, (2) medical directors of the insurance companies, (3) hospitals, (4) specialists. Workmen's compensation rates should govern the fees paid to doctors for services rendered.

D. That hospital rates were to be their lowest semiprivate charges.

E. That the client should have the choice of hospital and panel doctor.

F. That medical and hospital bills be paid by the Rehabilitation Division of the State Department of Education and that the individual make repayment to them on an instalment basis. Also that inability to pay would not disbar any one.

Expenses were to be met by a revolving fund, furnished one half by the state of Connecticut and one half by the United States.

This program was at once put in effect in Hartford County on an experimental basis, and after a month's trial during which time a panel of doctors and hospitals was set up, it was established on a statewide basis. At the time this paper was written too short a period has elapsed to speak of accomplishment.

It will be interesting and instructive to see how this works out now that it is on a statewide basis, but I am sure that the same enthusiastic response to a need that started this work will carry it on.

We in Connecticut believe in state rights. We will welcome all governmental advice and help that is offered, but we believe that with the earnest and hearty cooperation of the state agencies, the medical societies and hospitals and with the backing of the manufacturers, the compensation commissioners and labor that we can take care of our rehabilitation problem without regimentation.

DISCUSSION

Dr. William Arkwright Doppler, New York: In Connecticut they are quite successful in handling the tuberculous. Have you run across any situations of that kind?

Dr. James H. Biram, Hartford, Conn.: We have in the plant now fifteen or twenty known cases of tuberculosis.

Dr. Hussey: Can you say anything about this work in relationship to the waivers that Connecticut is so noted for in its compensation act?

Dr. Biram: If we couldn't take waivers on some of these conditions we wouldn't feel that it was fair to the company to take these people in. Maybe we do run high in waivers, but most of the sizable plants now have a medical director and a medical staff. They make preplacement examinations.

Dr. Hussey: What force does the waiver have actually, if there is a test of it in a legal procedure?

Dr. Biram: There never has been a test of the waiver in Connecticut in all the years during which it has been in operation. I don't see why a waiver isn't perfectly justifiable. When you have a plentiful choice of men it may not be, but when you are down to the dregs, as we are in Connecticut, I think a waiver is perfectly justified.

Dr. Hussey: It is my understanding that the whole waiver plan in Connecticut was really initiated by labor.

Dr. Biram: It was.

Dr. Joseph H. Chivers, Chicago: Is there any implication on the part of manufacturers that a man will be given a job if he submits to the recommended treatment?

Dr. Biram: Yes, we go over the man to be sure that he won't be turned down for any other cause and we obligate ourselves to give him a position in the plant. Of course, later on, after this is over, it might not be possible to do that, but at the present time as soon as the man is said to be ready for work we look him over and see that he is and if so he comes to work the next day.

Mr. H. E. Corevont, Lansing, Mich.: Do you have any state agency other than rehabilitation or a local agency that will be responsible for operative care or medical care of adults?

Dr. Biram: Not that I know of.

Mr. Martin Dailey, Brooklyn: Is there any provision in this program for persons who have been employed for some time and who have had breakdowns or is this just for preemployment?

Dr. Biram: This is just preemployment. A great many of these men have been employed and have left one job and are seeking a higher paid job. We take anybody who is capable of rehabilitation and see what can be done with him.

Dr. R. L. Nichols, Chicago: It has been said that people with major disabilities make better employees from the point of view of absenteeism than the normal. Have you found that true or not?

Dr. Biram: I agree with that. Absenteeism in the factories now runs somewhere between 8 and 12 per cent. Labor turnover varies from 8 to 12 per cent, practically 100 per cent a year. These semidisabled people stay at work and do a good day's job and are thankful for their jobs. The average employee today if he can get 10 cents an hour more will leave you and go somewhere else.

Dr. Harris Powers, Manchester, N. H.: Is there any question of aggravation being brought up afterward?

Dr. Biram: A waiver stands as far as any aggravation of the condition is concerned. You take a waiver on a hernia and the waiver will stand whether the hernia strangulates or not. We are not responsible for it.

CHAIRMAN HUSSEY: Connecticut is the only state in the Union that has such a satisfactory waiver law. Is that true?

DR. BIRAM: The compensation act in Connecticut works very well. We have high grade commissions. It is the only court I have ever been in in which I thought any attempt was made to obtain justice.

DR. C. F. YEAGER, Bridgeport, Conn.: In the eight years that I have been affiliated with the Remington Arms Company we have never known an instance in which advantage of this waiver was taken. However, I do feel that we would have a moral responsibility in case of aggravation, if not a legal one, and I am sure that we would take care of it.

Psychiatric Problems in Rehabilitation

DR. ALFRED P. SOLOMON, Chicago: If the physician decides that the patient is feigning or shamming, that his simulation is conscious or deliberate, he recommends that the patient be discharged from further compensation and medical care and that he return to his work. In most instances he does not anticipate that his attempted disciplinary action will immediately rehabilitate his patient.

It is a human trait to want to take things easy, to drop everything and take a long rest. The continuing disability payments in psychologically protracted convalescences encourage a satisfaction of this biologic urge. The alternative, a lump sum settlement, removes the parentalistic figure. However, paradoxically, the anticipation of this lump sum settlement often motivates the development of a protracted convalescence.

Large sums of money are spent each year for lump sum settlements when a diagnosis of traumatic neurosis has been made. I raise the question as to whether a much smaller sum of money could not be spent on a method of rehabilitation more psychiatrically sound both for the patient and for society as a whole. In this paper I will propose such a method. The method has four major divisions:

1. Psychologic understanding of the patient's character, in order to avoid emotional trauma to his personality during all his professional and industrial contacts.

2. Psychiatric evaluation of the patient's emotional problems, both related and collateral to his accident, in order to clarify the dynamic meaning of his attitudes, and so that the patient may be made to understand his own behavior.

3. Careful supervision of all the psychologic aspects of his return to employment, so as to avoid maladjustment and if possible improve his previous work adjustment.

4. Instituting at the first evidence of psychologically protracted convalescence of a recreation and exercise therapy program supervised by psychiatrically trained physical directors.

With psychotherapeutic interviews alone, the average patient will require additional therapy. It has been my experience that because of the frustrations involved these patients will cooperate in a treatment which offers them diversion, recreation and play, good body development and amiable companionship, even if the acceptance of that treatment denies the further existence of the convalescence.

For the past thirteen years I have used the full facilities of a well equipped gymnasium, such as the Lawson YMCA, for this treatment. Best results were obtained with nonresidents of Chicago who lived at the Lawson YMCA, confirming a usual psychiatric observation that patients more readily recover away from the influences contributing to their behavior. The luxurious atmosphere of this particular institution is far above the average standard of living of the workmen I have treated. This enables the employer to be seen as one who is generous rather than one who takes and deprives. The patient is carefully instructed in the indications for and the nature of the treatment. His cooperation will depend on his confidence in the assisting therapist as well as that of the physician. An athletic companion is selected who must be skilled in sports, a leader, decisive, resourceful, tolerant, sympathetic to the patient's resistant behavior, interested in a therapeutic result, able to comprehend a psychologic explanation and to follow orders. He should be able to motivate the patient by gaining his confidence; maintaining control of the situation at all times; be able to engage in competitive games, winning or losing at will; be able to teach the patient athletic skills, and to show enthusiasm and gratification at the patient's successful performance. On sight seeing excursions, on long walks in the parks, on visiting places of interest and amusement, he should be friendly, companionable and appropriately enthusiastic.

The patient should be introduced to the regimen with emphasis on play and recreation. As soon as he develops skill in a given sport he should engage in competitive games. The companion should play the game as fast as the patient's physical condition and ability permit. If the patient favors the right arm, the companion, as in the case of badminton, should direct the play toward that extremity without making this apparent and also avoiding pressure of this type if the patient is angered. The periods of activity should be short at first, later increased, with rest taken at the first sign of fatigue or physical complaint. The patient should not be coerced into activity. The companion should accept the patient's complaints at their face value.

The patient should be forewarned of the usual exercise muscle soreness concerning which he will usually make an "ado." The exercise therapy on the stationary bicycle, rowing machine, mat and pulleys are added later. The patient will not accept these as readily as those involving the pleasure of the game. To him these are tests.

The companion should intelligently present these activities as muscle training exercises, beginning with muscles not involved in the patient's complaints. Swimming will be found to be a favorite sport. Massage or heat therapy may follow the workouts to advantage and, early in the treatment, rest in bed. The evenings should be devoted to supervised amusement and entertainment.

The physician should see the patient at his office for psychotherapeutic interviews, the purpose of which is to encourage the patient through friendly understanding and if possible psychologic understanding, to engage in more and more activities. As the patient begins to enjoy the regimen and notes the general increase of body health, he will cooperate to the point of recovery. About six weeks is the average duration of treatment necessary to rehabilitate the patient. Some patients will use the gymnasium as a scene for indicating the alleged grave nature of their disability. These patients may be refractory to this therapy or require a much longer time to treat.

It is my recommendation that private capital or the government equip a large gymnasium for competitive sports, swimming, occupational and physical therapy, staffed by psychiatrically trained physical directors and occupational and physical therapists.

The problem of rehabilitation is a psychiatric one. Just as Freud acquired an understanding of human behavior through the study of the psychoneurotic patient, a study of psychologically protracted convalescence offers a contribution to the understanding of the total problem of rehabilitation.

DISCUSSION

DR. PERRY ROGERS, Chicago: Stopping of compensation sometimes serves as good treatment for a neurosis. It requires nice judgment to anticipate which patient it will make better and which patient it will make worse. The industrial doctor has an additional hurdle to get over before he can establish a satisfactory relationship with a patient arbitrarily sent him by an employer. The doctor can surmount this primary obstacle only by an additional amount of sympathy, by a more thorough examination and by more careful attention to all details of treatment than the workman has been accustomed to expect from the doctor of his own choice. It does not take a physician trained in psychiatry to spot the patient who needs this special kind of rehabilitation. The actual management of the treatment, the prescription and the supervision of the treatment require the most skilled psychiatrist, but the skill to select the proper patient may be developed by any doctor or nurse or claim adjuster or even by an inquirer. Dr. Solomon's plan of treatment works. I have had him cure a sufficient number of my

patients, most of them compensation claimants, to know that he is not fooling and to know that money spent on such treatment is saved many times in disability awards. Something new has been added in the field of analytic psychiatry. The modern psychiatrist can put his finger on the source of the disability in one or two consultations, with perhaps some further study as treatment proceeds. Under the direction of such a psychiatrist this type of rehabilitation can be effected outside of hospitals and with the assistance of technicians at relatively little cost.

DR. B. B. REEVE, Chicago: What would you recommend with employees who have these tendencies? Is there anything you can do toward preventing further trouble?

DR. ALFRED P. SOLOMON, Chicago: Lump sum settlement is a form of psychotherapy. Patients do return to work when we settle their claims. In industrial practice psychoanalysis promotes the understanding by the patient of the reasons for his behavior. The physician must not react to the patient's hostility with anger, with contempt or with irritation. The doctor must recognize that the patient's behavior, including his symptoms, is a protest against something, and he must try to discover what that is and help the patient understand it. The doctor equipped with this understanding both of himself and of his relationship to the patient and the patient himself is ready to use such therapies as I have recommended, which include giving attention, interest, sympathy, understanding, exercise and recreative programs. The patient who is maladjusted at work because of grievances following an accident has to be handled individually. Hostility directed toward the employer is present in our social system and manifests itself in many other ways than in behavior after an accident.

MR. THOMAS N. BARTLETT, Baltimore: Have you been able to determine how length of treatment may be affected by the injury received?

DR. SOLOMON: Often the most protracted convalescence follows a minor injury. If a person has a severe injury his gratification over the fact that he has recovered goes a long way, particularly when he has been given the necessary amount of adequate attention, toward rehabilitation. Whether it is possible to determine by a psychiatric interview how long it will take for the patient to return to work depends on several factors. It depends on the personality of the individual and whether the structure of his personality is such that he is a rehabilitable individual. Many of these patients are simply looking for justification of their behavior or for interest or consideration. If that is given to them they do very well. There are others whose emotional problems are so grave that the prognosis is not so good and, of course, this whole question is determined by psychiatric experience. Every physician is able to do this if he will begin early and approach all patients in this manner.

MR. BARTLETT: What is the average period for recovery or is that too flexible?

DR. SOLOMON: From six weeks to two months or three months has been adequate for the average case. Industrial people are not yet ready to spend a great deal of money or time on these cases.

DR. DAVID NEILL INGRAM, Houston, Pa.: Do you ignore entirely the constitutional adequacy of the patient whom you have to treat or do you take that into consideration too?

DR. SOLOMON: Many patients of the type I am talking about come to us with a syndrome which could be classified psychiatrically as neurasthenia. The symptoms are fatigability, exacerbation of their complaints when they do work or even think of going to work, and because they are dependent individuals they tend to get weaker because they don't work. Individuals do differ in body build and endocrine makeup. I don't believe that the diagnosis of neurasthenia is a constitutional characteristic of an individual who does hard work.

Physical and Occupational Therapy in Rehabilitation

DR. JOHN S. COULTER, Chicago: Rehabilitation is the planned attempt through the use of all recognized measures, under skilled direction, to restore those persons who because of disabilities do not assume to the greatest possible extent and at the earliest possible time that place in the productive stream of society which they are potentially capable of assuming. This is the definition of rehabilitation that was approved by the Council of Rehabilitation which met in New York in 1942. This council meeting was attended by representatives from practically all the societies concerned in rehabilitation.

In the present war the Surgeon General of the Army has left the physical therapy of the injured soldier in charge of a female physical therapy aide. This work is ostensibly supervised by a board of regular army medical officers of the highest type but who have not had recent experience in physical and occupational therapy or in rehabilitation. A recent bill passed by the House of Representatives and the Senate and signed by the President gave to physical therapy aides in the army the same relative rank as nurses but omitted occupational therapy aides. Apparently there is nothing in the set up for a qualified medical officer to be in charge of rehabilitation.

Rehabilitation should start at the bedside of the injured patient and should include physical therapy, occupational therapy and later vocational rehabilitation. The injured patient who has received surgical treatment should be given physical and occupational therapy at the bedside. As soon as possible he should be sent to the department of physical therapy and to the curative workshop of the occupational therapy department. Rehabilitation of the patient starts at the bedside.

The yardstick for the evolution of surgical care should be the rehabilitation of the injured person, i. e. his restoration to the greatest possible extent and at the earliest possible time to that place in the productive stream of society which he is potentially capable of assuming.

The Manual of Physical Therapy originally published in *War Medicine* is now available as an American Medical Association pamphlet, price 25 cents. It was edited by the Council on Physical Therapy of the American Medical Association and the National Research Council. The Manual of Occupational Therapy soon to be published in *War Medicine* will likewise be published as a small pamphlet by the American Medical Association. It was written by a committee of the American Occupational Therapy Association and edited by the National Research Council and the Council on Physical Therapy of the American Medical Association. Physical and occupational therapy we believe are the first two steps in a rehabilitation program of the injured or sick person. The manuals discuss the use of physical and occupational therapy in strains, sprains, muscle injuries, dislocations, fractures, peripheral nerve injuries, head injuries, arthritis, infantile paralysis, heart conditions, tuberculosis, spastic paralysis and nervous and mental conditions.

The Council on Physical Therapy, aided by a committee of prominent surgeons and the American Association of Limb Manufacturers, recently published "A Manual of Amputations." Here again the value of physical and occupational therapy in amputations is shown.

The Council on Physical Therapy will shortly publish the fourth edition of the "Handbook of Physical Therapy." This handbook emphasizes the place of physical therapy in the rehabilitation of the sick and the injured. It is used as a textbook in many schools for physical therapy technicians and in many medical schools.

The Council on Physical Therapy can supply mimeographed designs to make apparatus for electrotherapy and for exercises. The Council also publishes yearly a free pamphlet "Apparatus Accepted," which lists the apparatus which is safe and effective. Apparatus is not the important element in physical and occupational therapy in rehabilitation. Personnel is.

No program of rehabilitation either in our armed forces or in civilian life will be effective unless it is directed by a physician. He must be solely interested in the rehabilitation of the patient and not in furnishing to the insurance companies or courts reports on the patient's condition. The physician in charge of rehabilitation is in a most favorable position to study the human organism in its entirety, both as a living mechanism and as the essential element of human society. He and his technicians have time to discover and to help control the social influences detrimental to the sick and to the injured.

The Army is placing physical therapy physicians in charge of physical therapy departments but there is no provision for him to be in charge of rehabilitation. Few occupational curative workshops have been established. Physical and occupational therapy aides in the Army should meet the requirements set up by the American Registry of Physical Therapy Technicians at 30 North Michigan Avenue, Chicago, and the Registry of Occupational Therapy Technicians at 175 Fifth Avenue, New York. No rehabilitation program can be successful without the hands and brains of a good technician or aide.

DISCUSSION

DR. JAMES H. BIRAM, Hartford, Conn.: We return to work the next day 75 per cent of all patients with Colles's fractures and over 50 per cent of patients with Pott's fractures. We return to work on the same day, within an hour, 75 per cent of all of our patients with severed extensor tendons and the next day practically all of our patients with severed flexor tendons. The majority of our injured employees go back to work and work cheerfully and painlessly and have minimum disability as the result of physical therapy and occupational therapy.

DR. HUSSEY: We have in Baltimore two curative workshops and physical therapy departments, one in the Johns Hopkins Hospital and one in the University Hospital, but we cannot get industrial injuries to those places for treatment.

DR. D. J. GALBRAITH, Toronto: Rehabilitation starts immediately after the accident. In all serious accidents we attempt to have our rehabilitation officers get in touch with the patient as quickly as possible. Their interest and contact is maintained until the patient is back at work or has been retrained, reeducated and compensated for his remaining disability. We have perhaps a little advantage in that we can put the men back on a wage loss basis. We induce the employer to pay them their full wages, tell them how well they are doing their jobs, and we pay the employer the difference between what they earn and what their regular wages are. Early contact on the part of our rehabilitation officers does tend to prevent the development of a psychosis. Start early before the claimant begins to wonder how he is going to support his wife and family. We have set up a physical and occupational therapy division, treating about 150 patients along the lines Dr. Coulter has indicated. We lack continuous control of the patients. We have to put them in boarding houses and so lose control from 5 o'clock at night until 8 'clock the next morning, and that is a very important time in the handling of these cases. Many of them are not accustomed to the city. They find many ways of spending the time that are not beneficial to their health.

DR. HUSSEY: I am impressed in Baltimore with a considerable amount of competition between the occupational therapists and the physical therapists. Is that something peculiar to our geographic location or is that something that one encounters generally?

DR. JOHN S. COULTER, Chicago: In Chicago we have physical therapy and occupational therapy under the same doctor and we don't have competition. The Council on Physical Therapy thinks of occupational therapy as a part of physical therapy.

The Future of Rehabilitation

MR. TERRY C. FOSTER, Washington, D. C.: Few people are aware of the size of the problem of rehabilitation and its social and economic implications. There are in this country eight million people who have physical disability of such nature and degree as to cause them difficulty either in getting a job or in holding a job. Six million of them are normally in employment but two million for one reason or another are unemployed. Many drop permanently out of the labor market, but the pool is kept at a fairly constant level from a number of sources: (1) those currently disabled in industry, automobiles, home, other accidents, and from disease and congenital causes; (2) young disabled persons who reach employable age, and (3) those disabled as a result of military operations. The annual increment from these sources is now at the rate of well over a million persons a year. Thus the minimum job of a rehabilitation service in this country is the rehabilitation of one million persons, to say nothing of another million from among the six million who are normally employed but who drop out for one reason or another. These two million persons not only are not producing, they are consuming approximately one billion dollars a year of the productive effort of others.

The vast majority of people in this country earn their living through work. The ability of a person to work and to get a job represents the economic foundation of his life. Any condition which affects the economic foundation of two million people affects the economic welfare of the nation. In the present manpower situation it is sheer folly not to make them employable and put them to work as quickly as possible.

The program which is now being considered by Congress would provide for those disabled in the military and naval services as well as for civilians. It would provide any service necessary to get a person into a job and keep him there. It would be a comprehensive program, and it would be one strong enough to meet present and future needs. But there are two obstacles which must be removed if any rehabilitation program, present or future, is fully to fulfil its potentialities as a social instrument. The first obstacle is attitude.

In the past, most employers have had the idea that a disabled worker is less efficient and more prone to accident than the physically normal and have taken on the handicapped only when the physically normal were unavailable. They have failed to realize that a disabled worker who is properly matched with a job is a safer risk than a physically normal worker improperly matched with a job. They have used physical examinations for the exclusion of the physically imperfect rather than as one of the measures for the proper placement of workers. The present manpower shortage is compelling the employment of the handicapped, but the idea of using physical examinations, tests of aptitude and personality inventories as a guide to putting the right man in the right job has not taken hold. Not only is there the inefficient use of labor but also large numbers of urgently needed workers in our war production industries are being injured and crippled.

If employers would accept the principle of proper matching of workers and jobs there could be no valid reason for the exclusion of handicapped workers. A properly placed handicapped worker is not handicapped in performing a job that is suitable to his physical condition, aptitudes and temperament. Obviously there are large numbers of the handicapped who are physically unfit and should not be accepted for employment. However, most of them can be made fit through proper rehabilitative procedures. That is the job of the rehabilitation service. Industrial surgeons should use their influence with management to establish a more scientific method of placing workers in industrial plants and a more receptive attitude toward the employment of the handicapped.

The second obstacle is the inequitable provisions of second injury clauses in workmen's compensation laws in most of the states. With few exceptions the alleged workmen's compensation laws in this country are nothing more than employer liability laws. Some of them, while quite liberal to employers and insurance carriers, are positively vicious in their effects on those injured in industry and on the other taxpayers in the community. The medical benefits are farcically small, the disability benefits are insufficient and, worst of all, the second injury clauses serve as effective barriers to reemployment.

In several states a handicapped worker has the choice of signing a waiver to his right to compensation in the event of a second injury or of not getting a job. In other states where employers might be willing to hire handicapped workers they cannot afford to do so because under the compensation laws they would be liable for the total results of a second injury, the cost of which in the event of permanent total disability would run into big money.

Do you see what these things mean to the injured worker and to the other taxpayers? First, when the medical benefits are small, the injured worker is obliged to expend a considerable part of his compensation benefits on medical care. When the remainder is gone his family or the taxpayers of his community

must take care of him because the second injury clause in his state workmen's compensation law establishes an effective barrier to his reemployment. Furthermore, in some states even where medical and compensation benefits are more nearly adequate there is neither encouragement nor incentive for the injured worker to accept the opportunity of rehabilitating himself—nor is there any penalty for failing to do so. The result is that many beneficiaries of workmen's compensation are simply pauperized.

My denunciation of the effects of these laws should not be interpreted as advocacy of their repeal. It is not. My plea is that they serve the purpose for which they were originally conceived—and I assure you that they were not conceived simply as a device for limiting the liability of the employer or insurance carrier. They were conceived for the conservation of the worker and as a means of distributing equitably the financial burden of industrial accident and disease.

The inequitable provisions of some of these laws in a number of states are seriously interfering with the recruitment of labor in war production plants. The legislatures of most of the states are now or will be in session during the next few months. May I urge that you interest yourselves and the employers with whom you may be associated in amending these laws in such a way that they will serve the purpose for which they were conceived. Let's make them real compensation laws, laws which not only will protect the employer and compensate the disabled worker but will encourage and give incentive to the injured worker to accept the opportunity to rehabilitate himself. If this is done it will contribute now to the war effort and it will greatly facilitate the rehabilitation of the thousands who are being injured in the war—a hundred thousand for each year of our participation.

Two years ago I made a proposal that the medical profession, the workmen's compensation agencies and rehabilitation officials appoint committees to get together and decide on a program in respect to the problems in which we have a common interest. I still think that it would be a good idea.

DISCUSSION

DR. HUSSEY: At one of the meetings of the International Association of Accident Boards and Commissions Mr. Foster presented a paper in which he summarized states in which the industrial accident commissions were cooperating with the vocational rehabilitation bureaus and those which were not. The ones that were cooperating in any effective manner were extremely few. My unfavorable remarks about Maryland a moment ago with reference to the use of the curative workshop clinics in physical therapy is just reversed about the vocational rehabilitation. We have in Maryland, in the industrial commission, a full time representative of the state vocational rehabilitation bureau. He reviews all the claims that come in, and he is able to follow these individuals from the very beginning. That is the type of work that the industrial commissions will have to do if we are going to have success in this program as far as industry is concerned.

MR. EDWARD I. FRIEDMAN, Providence, R. I.: Prior to leaving Rhode Island to come here I was instructed by my director to promulgate two drafts of legislation to carry out some of the suggestions which have been made at this meeting. When I get back I shall have to draft a bill to set up a curative center fund and also a second injury fund. I have been vitally interested in these two particular propositions as an administrator. It has been one of the greatest problems that we have to deal with, particularly low back cases, head injury cases and maladjustment cases. Dr. Galbraith is too modest. He has a system of which he can be proud and that we should copy. When we attempt to set up this legislation, his jurisdiction is going to be our model. We are the first state in the United States to adopt a cash sickness fund, so that now when a person is unable to work, by reason of unemployment, sickness or accident, in the state of Rhode Island, after April 1, 1943 we will see that he is taken care of. I hope that by the adoption of a second injury fund and a curative center fund we will further supplement the work that we have been doing.

JANUARY 13—MORNING

DR. JAMES S. MCLESTER, Birmingham, Ala., Presiding

SYMPOSIUM ON NUTRITION IN INDUSTRY

Criteria for the Evaluation of Nutrition Experience in Industry

DR. FRANKLIN C. BING, Chicago: This article appears in full in this issue, page 813.

Progress in the National Program on Nutrition in Industry

DR. ROBERT S. GOODHART, Washington, D. C.: This article appears in full in this issue, page 823.

Current Nutritional Activity in Industry: A Review and Appraisal

DR. GEORGE R. COWGILL, New Haven, Conn.: This article appears in full in this issue, page 817.

DISCUSSION

DR. L. B. PETT, Ottawa, Ont.: The question is "What is a suitable length of time for lunch in a large industrial plant?" I am concerned with nutrition in industry in Canada, and a survey of Canadian industries shows that lunch periods vary from twenty minutes at the shortest to an hour and thirty minutes at the longest. We have recommended that not less than half an hour should be the lunch period. There are circumstances, of course, that modify this. I think the most important one that we have found in Canada depends on the size of the plant and whether the workers eat in a cafeteria, bring their lunch boxes or go home for lunch.

DR. GEORGE R. COWGILL, New Haven, Conn.: I have this question: "What is the relationship of adequate food and vitamins to industrial hazards such as benzene or lead?" I am not competent to discuss the benzene poisoning problem. Regarding lead, an important factor affecting the absorption of lead is the presence of calcium in the diet. Experiments indicate that a liberal supply of calcium in the diet tends to cut down on the absorption of lead. From that point of view, a food like milk should be valuable for preventing the absorption of lead by people exposed to that metal. Here is another question: "Is it true that milk has no benefit as an antidote for lead poisoning?" As a preventive measure or something that would tend to cut down on the absorption of lead, I think that milk would be regarded as having some value because of the calcium content. Another question is "When should an employee on the 3:30 p. m. to 12 o'clock midnight shift eat his meals? Should he eat a heavy meal before going to bed at, say, 1 a. m.?" I think probably some of the industrial physicians who have had actual contact with that problem would be better able to answer this question. I should say that much would depend on whether the individual plans his eating of his meals with the entire day in mind. Dr. Bristol tells me that the telephone company frequently has trouble with young women employees who want to quit because they are on some unusual shift. They say they cannot eat right, and the problem is solved by educating those people in the matter of getting an overall proper intake of food. I should think that it would be difficult to lay down any definite rule here. If a person is going to work on that shift and eats heavy meals at the end of the day, as most of us do at the end of our day, then it would be logical to eat a heavy meal around 1 a. m., but I doubt if one can set up rules that will cover all cases.

DR. L. B. PETT, Ottawa, Ont.: I am going to finish the questions that I have here. "Do you believe a survey in any given industrial concern of the food habits or nutritional status of the worker is essential prior to an educational nutrition program?" And along with that is a second question that is closely allied: "Of how great value would be a survey of foods eaten by workers as reported by them over a period of a week?" I will have to confine myself to certain dogmatic statements. I do believe that a survey prior to an educational nutrition program in industry is essential. It may not be essential in the given industry concerned, provided a survey has been conducted in a representative industry, but the method of procedure that we

are adopting in Canada is that a survey has to be made in order to influence as little as possible the food habits of the people. We find that a coal miner in Alberta, for example, a western province, has not the same dietary habits as a coal miner on the east coast, in Cape Breton, Nova Scotia, and one cannot educate him in nutrition on a sound basis, on a purely theoretical basis, unless one takes into consideration his food habits. The next question I have here is "What effects do caffeine containing foods have on workers?" We have to distinguish two aspects of this question. There is the implication of the effects due to caffeine and then there are effects due to other factors, such as sugar. There are certain other considerations that have to be given this question, such as whether the caffeine containing food, let us assume it is a beverage, is a warm or a cold beverage, and what differences will be noted in each case whether it is warm or cold. I have a suspicion that effects from caffeine containing foods are for the most part not due to the caffeine they may contain. That is not to say that caffeine would not have an effect in itself, but there are certain other effects associated that may have to be considered and in general I am inclined to believe that these are deleterious. They are injurious. I particularly mention the sugar that is consumed at the same time. Under certain circumstances in a diet otherwise marginal with respect to thiamine, there is no doubt that the consumption of sugar may actually increase rather than decrease fatigue. A final question is concerned with "The excessive use of alcohol in relation to nutrition and energy needed in industry." Perhaps because I come from Canada I may point out that we are launched on a campaign right now, officially sponsored by the government but not directly associated with my department, to reduce the consumption of alcohol specifically in industrial areas.

DR. RUSSELL M. WILDER, Rochester, Minn.: Our chairman has given me a group of questions which can be answered together. One of these is "What are the objections to soda pop?" Dr. Pett has already given his objections. In connection with that subject the Council on Foods and Nutrition of the American Medical Association has recently published an article on the subject of sweets and carbonated beverages which represents the views of that council on this subject. The other questions are "What can be done to counteract the sales of nonvitamin soft drinks in my plants?" "Would it be desirable to maintain high levels of blood sugar during the day? Is there any good evidence that the taking of sugar between meals reduces fatigue?" and finally "What is the importance of an adequate breakfast and of what should it consist?" I propose answering those questions together.

There is a condition known as hypoglycemia, which is more or less the antithesis of diabetes. This low level of the blood sugar is poorly tolerated. There is a normal mechanism for maintaining a blood sugar level that does not go below 0.07 Gm. per hundred cubic centimeters of blood and does not rise above 1.2 Gm. per hundred cubic centimeters. When the blood sugar goes above this, as it does in diabetes, we may have some effects. If it goes higher than the threshold level of the kidney we find sugar in the urine. Moderate elevations of the blood sugar, as far as I can see, are of little harm, although the severe elevations that accompany diabetes represent something serious. Now the opposite to that, the low blood sugar, is definitely associated with weakness of the muscles and with increased irritability and, if it goes lower than that, with definite mental symptoms and finally loss of consciousness.

There is a disease that is associated with an increased supply of insulin to the body. It is represented by the development of minute tumors in the pancreas, tumors of the islands of Langerhans, producing excessive amounts of insulin, and that disease is a serious one because it is associated regularly with severe hypoglycemia. However, that disease is a relatively infrequent disease, and for every patient with that disease there are, I think, hundreds of patients who periodically have low blood sugars that are, you might say, functional in origin. There may be a nervous element to the production of some of these low blood sugars, but also that tendency to develop low blood sugars between meals is one that may be stimulated, I feel sure, by eating high carbohydrate meals. It has been shown definitely that if one gives two doses of sugar, one following the other, the elevation of the blood sugar that is produced by the first dose is not observed in the second dose, and that the fall of the blood sugar after the dose of sugar is greater after the second dose. This hypoglycemia developing between meals is the reason that so many people I think, are turning to soft drinks and so many industrial workers are finding that feeding sugar between meals helps to tide these people along and to keep them more effective. The objection to giving sugar between meals that way is that one doesn't provide with it the vitamins that are needed for its own utilization. One throws on the rest of the day's intake of food the burden of providing those vitamins and increases the likelihood of the individual's suffering from a chronic or a mild hypovitaminosis. In some cases I think severe grades of hypovitaminosis have been produced by excessive consumption of sugar. Certainly the more of this drinking of soft drinks between meals or eating of rich carbohydrate foods, such as candy bars, at those times of the day when one feels weak and empty, the more likely one is to need to continue to do so, and for that reason, as Dr. Pett said, there is some reason to think that eating sugar instead of correcting fatigue may lead ultimately to an increased sensitivity to fatigue. I agree with him in that statement.

We have found clinically at the Mayo Clinic, and others have made the same observation, that the best way to treat persons who have this tendency to low blood sugar between meals is to take them off a high carbohydrate diet and put them on a high protein, high fat diet, with rather considerable restriction of carbohydrate and particularly with restriction of sugar. They may have starches because starches are a little slower to digest. These ultimately may end up as sugar, it is true, but they enter the body less rapidly and they are associated with a less acute level of the blood sugar. They raise it less slowly than when sugar is taken as sugar and they raise it usually to a lower level, and the result is that the fall afterward is more gradual and to a less extremely low level. One of the reasons in my opinion why we are seeing more of the type of weakness in people occurring at 11 o'clock in the morning and at 4 o'clock in the afternoon and leading up to wanting something sweet to eat at those times is that the American people have gotten out of the habit of eating a good breakfast and a good lunch. The objections to eating, as so many women do and some men, a little carbohydrate in the form of fruit juice and then some jam on a piece of toast and a cup of coffee with sugar in it and letting that represent the breakfast as a whole are two: In the first place you throw sugar into the empty stomach and into the blood rapidly and you get this effect that I have described. In the second place, whenever you skimp on one meal you have to depend on the other meals to provide you with the vitamins and the other nutrients that you require for a balanced diet, and as many people not only skimp on their breakfasts but also skimp on their lunches, it throws the whole burden of taking care of the nutrition on the one evening meal, and unless you choose that meal with greater wisdom than most people possess, you are among those who are in this borderline of nutritional deficiency.

I was asked what I think a breakfast ought to contain. I think a breakfast ought to contribute its share of the various nutrients required for the day's nutrition. I think a breakfast ought to start off with a source of vitamin C and some sugar, if you wish, in the form of a fruit juice, a very satisfactory way of breaking the fast, true enough, but not a satisfactory breakfast as a whole. Then I think you ought to have your share of the B complex vitamins in that breakfast, which can best be obtained by having a satisfactory portion of a whole grain cereal, breakfast food or bread or lightly toasted bread, remembering that heavy toasting destroys the vitamins in bread, lightly toasted bread or real wholewheat bread or enriched bread. With the carbohydrate that you get from the fruit juice or the tomato juice you ought to have some fat, because fat delays the emptying of the stomach and thereby prevents the sugar that you will get from those other sources from entering rapidly into the blood stream and, therefore, some butter or properly enriched oleomargine with your toast or with your bread. Cream we could dispense with. It is a luxury food more or less. If you are not getting the butter, by all means have the cream, because it is a fat, but more important than

cream is whole milk. The European habit of drinking café au lait is an excellent one because that is a way of consuming milk. Coffee in itself has little to be said for it as a nutrient. Then there should be some source of protein. I think that it is desirable to have an egg for breakfast, not only because of the fat but also because of the protein content, or an equivalent portion of meat is a desirable thing in the breakfast. Now then if to fill up you want to add some sugar to your coffee or some jam to your bread there is no harm in that at all, because you have the other things to take care of it and you are taking it with a meal so that it won't quickly enter the blood and produce this effect that I have talked about before. Such a breakfast will do much, I think, to prevent this craving that people have for these sweet drinks between meals and will cut down the consumption of sugar between meals, particularly if such a breakfast is followed by a satisfactory lunch, a lunch which also contributes its share to the day's nutrient requirements. I think it is important that the wives of workers learn the type of breakfast they ought to serve their men.

Now there is one more question that I was asked to discuss: "What can we reply to people who ask about the general distribution of vitamins in industry?" I have rather felt that this question was answered in Dr. Bing's paper, in which he referred to another publication of the Council on Foods of the American Medical Association, which also can be obtained on request by writing to him, the Secretary of that Council, at the A. M. A. offices. At the present time the feeling generally among nutritionists and these advisory bodies that are dealing with these nutrition problems is that it is not wise to depend on vitamins alone to effect what we think ought to be done to the nutrition of workers, because there are other things besides vitamins that are lacking in these diets. On the other hand, the subject is still open. There are certain things that are more likely to be missing in diets than others. Among them are vitamin B_1, vitamin B_2 or riboflavin, and I imagine no serious harm would be done by adding those to the workers' diets even though you added nothing else. On the other hand, that is not the purpose of our campaign, and it also is known that one may have an adequate supply of these vitamins and have other vitamins available synthetically and still suffer from symptoms that are similar to symptoms that develop when thiamine is missing. For instance, as Dr. Sydenstricker showed not long ago, a biotin deficiency produces signs and symptoms very like those resulting from a deficiency of vitamin B_1, or a loss of thiamine, so that, while it may be desirable under certain circumstances to administer vitamins generally to the workers in the plant, it is not the best way to go about the solution of the problem and it is very doubtful whether it will completely solve the problem.

DR. MCLESTER: Dr. Wilder made out a case for protein because this foodstuff is absorbed more slowly and the boost we get from it is more sustained than from other foodstuffs. I would go him one better and make it two eggs at that breakfast.

DR. ROBERT S. GOODHART, Washington, D. C.: The first question that I have is "What are the criteria for judging the adequacy of a lunch for workers?" We have recommended a standard lunch, that is, a lunch that provides at least one third of the day's nutritive requirements. Those requirements that we refer to are the dietary allowances of the Food Nutrition Board of the National Research Council. That is general. Of course, I suppose what the questioner is interested in is a specific outline of how any individual physician could judge whether this diet is adequate or not. We might say that there are four foods which the inspector or the physician might look for on the lunch to see whether or not the diet is adequate. First is a meat or meat alternate, and a meat alternate includes all the varieties of meat and cheese, dried beans, soybeans and so on, the legumes. Second, two vegetables, one green or yellow. Third, milk either as a drink or as a milk dessert or milk as a soup. Fourth, the use of enriched or wholewheat bread and butter or fortified oleomargarine. A possible fifth—I make it possible—is a source of vitamin C on that diet.

We know that, according to the usual methods of the preparation of foods in mass feeding, cooked foods are not very dependable sources of vitamin C. I don't think we would be safe in relying on any cooked food as a rich source of vitamin C; therefore you would look for tomato juice, tomatoes, raw cabbage or citrus fruit as sources of vitamin C. I made that a possible fifth item because that is one thing that most of us who take time for breakfast and can afford to do so manage to get largely in our breakfast or can get at home. However, it is unsafe for us to expect that the industrial worker will do that. We know that the great majority of workers take the inadequate breakfast that Dr. Wilder was talking about, perhaps toast and coffee, Danish pastries and coffee, or doughnuts and coffee. That is the workingman's breakfast, and if you rely on his obtaining vitamin C in that breakfast you are going to find that he will develop evidences of inadequate intake of vitamin C.

We set up a standard of one third and then we did a little figuring on our own to find out how difficult it is to meet this one third, and we found that it is a very simple matter to make up diets which meet one third of the daily requirements. In fact, the meals that we made up came closer in all respects to meeting one half, and we found that it is quite easy with two meals, that is, an adequate lunch and then a light refreshment period in the midafternoon and midmorning, to meet two thirds of the daily food requirements in every respect except calories, and even there it is not difficult to make up the extra calories. We are most anxious that plants shall not stick to the one third idea but approach the two thirds as nearly as possible, because we know that there are many conditions—let's take again some of these big plants, ordnance plants and aircraft factories that have been placed out in fields. The people have to go 30 or 40 miles to work. They cannot get a good breakfast. Perhaps they live in trailer camps or they live in a housing development and they cannot get good meals at home. The burden of providing good meals then falls on the plant. I have talked about a good hot meal. We have been emphasizing the fact that it is possible to get cold lunches which are just as good from a nutritive standpoint as a hot meal, and very often they can be much better. Where the proper care has not been taken in the preparation of hot meals, many of your nutritive factors are lost. This does not happen in the preparation of a good cold lunch, and owing to the fact that there is a great deal of difficulty in getting good cafeteria equipment we think that the nutritive value of cold lunches should be stressed as much as possible. There is nothing wrong with the properly prepared sandwich. Two sandwiches made with enriched bread or wholewheat bread and with a proper filling and spread with fortified oleomargarine or butter, plus a glass of milk or tomato juice, make a very good lunch, providing one third of all one's daily requirements.

The second question that I have is "In rationing the amount of coffee and ice cream available to industrial cafeterias, why has the arbitrary figure of 60 per cent of last year's consumption been taken regardless of the increased number of employees? Why not reduce past consumption to a rate per thousand employees and use that as a basis for rationing?" Of course coffee is not a food, it has no food value, but it may be important from the standpoint of morale. The rationing of ice cream is not fundamentally a nutrition problem. Ice cream is a good food but it is not one of the most effective ways of consuming milk. However, this question is quite pertinent, and all I can say at present is that the government is working on a plan to assure that rationing will be on a per capita basis and not on a historical basis regardless of the increased number of people in a community or in a restaurant, and that problem is being worked out just as this questioner believes it should be done.

The third question is "In many plants the 'Victory Plate' or 'Special Platter' is being offered at a reduced price—the worker paying about two thirds of the price usually asked. Does your division offer specific suggestions for the contents of such platters for a weekly offering? If not, where can such data be obtained?" We have on request distributed to plants a list of menus, that is, for two weeks, for both the hot and cold lunches, and we are preparing a master menu form which can be sent to all our regional people and our state and local nutrition committees, and it will also be available to all plants. However, as Dr. Pett has pointed out, food habits vary from one section of the country to another, and we know that it is not possible for us in Washington to fix up one standard diet that will be suitable for the whole country. This is one of the main reasons for our trying to get industry to use the services of the local bodies, of the state nutrition committees and of our regional offices, because these state committees make up such diets based

on the available food supplies and food habits of their localities. We should like to refer questions of that nature to the state nutrition committee in the state where the plant is located.

Another question has been referred to me and that is "Is the efficiency of vitamin C in the prophylactic treatment of heat exhaustion of sufficient value to warrant its distribution with salt in industry?" There is a lot of work going on in this subject now, and all I can say at present is that the importance of the loss of vitamin C in sweat is still very much a moot point. The evidence seems to be accumulating that perhaps not a very important amount of vitamin C is lost in the sweat. The work that has been done on the importance of vitamin C in the prevention of heat prostration was done in the chemical industries and it was done in the rooms in which the employees were exposed to trinitrotoluene. The beneficial effects observed there may not have been due to the fact that these patients lost vitamin C in the sweat but to the fact that the increased temperature in these rooms brought about an increased vaporization of trinitrotoluene and an increased absorption of trinitrotoluene, so that the vitamin C acted as an effective agent in detoxifying trinitrotoluene. This problem has to be worked out in an industry where the individuals are not exposed to the effects of such chemical poisoning.

We know that vitamin C has two actions, one a physiologic one as a vitamin and the other that it has an action demonstrated repeatedly in experimental animals in detoxifying certain chemicals. This is a pharmaceutic action and apparently is not related to its physiologic one as a vitamin.

If I may ask a question myself, I should like to ask Dr. Pett to discuss some observations he has made on the relation of the consumption of soft drinks in a plant to the consumption of milk.

DR. L. D. BRISTOL, New York: I have been asked "Is it advantageous to have midshift rest periods with access to food?" The answer in general I think is "yes," and there are various examples in which industries are doing this. Some industries prefer to make available at their own expense midshift feedings, whereas other industries, such as the Bell Telephone Company, in most of its larger locations, at any rate, have cafeterias open all through the day when employees may obtain foods at their own expense. I think we should keep in mind also that the lack of food often gives rise to fatigue, and fatigue isn't entirely a matter of work. It is partly a matter of hunger, and we believe that a certain portion of accidents may be prevented by keeping in mind the importance of this possibility of midshift rest periods with access to food.

Second, "How can we encourage employees to drink more milk? and "Is there any such thing as drinking too much milk in a day?" and "Are chocolate milks a desirable food?" First of all I would say that it is largely a matter of education of the employees as to the value of milk, the fact that, after all, it is of all the foods perhaps the ideal food, and then see that it is made available at as low a cost as is consistent with the budget of the industry. If you can have milk available at a low figure as compared with some of the other drinks, you will have more milk consumed without any doubt. Then too I think we must educate our employees, particularly the women, that milk isn't necessarily fattening. For some reason or other no woman likes to drink much milk because she thinks it is going to make her fat, and our reply there is "Good nutrition means fitness and not fatness and that includes the use of milk." So far as drinking too much milk in a day is concerned, I would say there isn't very much danger along that line. The danger is altogether in the other direction.

"Is chocolate milk a desirable food?" Well, certain chocolate milks are better than most of the other soft drinks. The only difficulty is that most of these chocolate shakes and so on are frequently made with skimmed milk and you don't get the nutritive value and they have that additional sweet that Dr. Wilder has referred to.

Third, "Where can one obtain suitable advice about diet?" Well, first of all I should certainly say from your doctor. Don't forget your doctor in this whole program. He is trained, or should be trained, and perhaps he will refresh his training if he needs to do so to answer some of these questions. Secondly, I would say your doctor's organization, and that means largely the Council on Foods and Nutrition, where there is a vast amount of information with reference to diet. Then briefly, other groups such as the local health department, the local medical society, local and state nutrition committees that have been mentioned, the agricultural colleges and universities, and at the federal level the agencies that have been referred to by Dr. Goodhart.

The next question is "If we have not up to this time laid such a basic understanding of diet and nutrition which will carry us through the present emergency, can we expect to accomplish results now in the relatively short time available commensurate with the use of manpower required for the effort?" I should say that by all means every effort we can put into this will pay returns in the war effort, but beyond that it seems to me we are laying a basis for nutrition education in this country that is going on through the period after the war. If World War I laid the basis for the venereal disease education and control, I am one who believes that World War II in the field of health will lay the basis for nutrition education and emphasis all through the coming years.

Then finally, this question that Dr. Cowgill referred to with reference to the relationship of meals to shifts. I think I cannot do better than just refer to our instructors' handbook that is used in connection with our nutrition course for employees.

DR. HELEN S. MITCHELL, Washington, D. C.: One point that has not been brought up is the employees in the small plant of twenty to thirty or even fifty where inplant feeding is impossible and where they do have a third shift or work overtime if they have war orders today. That has come to my attention several times, particularly in Detroit, where there is a very large population of these small plants and where some of the employers have thought that something should be done toward offering that afternoon lift at 4 o'clock, for instance, when they bring their lunches and eat them at 12, work through to 8 or 10 at night and there is no stop between 12 and 8 for anything and there is no inplant feeding. They bring their lunches or eat out. The effort there has been thwarted in several cases by the fear of patronage, so again we are met with thwarted good intentions on the part of employers recognizing the need for doing something, and particularly in plants employing older workers, because a good many of these small plants have workers who have been with them twenty, thirty or forty years and they don't lay them off today when they are busy. They are keeping them on, but they are very fearful of their standing the gaff of a ten or eleven hour day, which is what is happening, and yet there is no adequate provision or effort or interest on the part of the employees collectively toward providing that ten minute period or even accepting it if the employer wishes to offer it. It creates a problem.

DR. PETT: Dr. Goodhart's question concerned the problem of milk in relation to soft drinks in industrial plants, and since he has directed it to me I assume that it asks for our experience in Canada, because we have had some experience in decreasing the use of soft drinks in an industrial plant by various methods. The first method I shall mention had nothing to do with my office. The government put a tax on soft drinks of 1 cent a bottle. We observed the effects of that immediately, and I should like to add one interesting comment: Not only did milk sales jump considerably but this increase has been sustained for about seven months now. That is quite important. It wasn't a temporary change. However, there are some other methods that have been used in Canada with success. A second method is that the plant management—and this has been especially possible in a new plant—simply orders a limit of perhaps two bottles of soft drinks a day per employee. This may sound rather autocratic, but it has been done and, indeed, we have plants in Canada where the average consumption has been as high as ten bottles a day and the plant management ordered it reduced to two bottles a day, a definite ration within the plant, and immediately the milk consumption increased enormously, and the interesting point is that in those plants at the present time the consumption of soft drinks is actually less than two bottles per employee daily. It is reduced below the ration set by the plant. This means that milk can hold its own once the habit is started. The third fact I should like to mention is that when access to a bottle of milk is made easy, that is, when it is easy to get, we have found that milk will more than hold its own in popularity as a beverage both between meals and at meals with soft drinks.

DOCTORS AT WAR

Radio broadcasts of Doctors at War by the American Medical Association in cooperation with the National Broadcasting Company and the Medical Departments of the United States Army and the United States Navy are on the air each Saturday at 5 p. m., Eastern War Time (4 p. m. Central War Time, 3 p. m. Mountain War Time, 2 p. m. Pacific War Time). An exception is the Chicago area, where the broadcasts are heard by transcription at 8 p. m. Central War Time Saturdays on Station WMAQ.

The titles and speakers for the next four programs are as follows:

March 13. "When To Call Your Doctor."

March 20. "Fit to Fight."

Guest speaker: Major General Henry S. Aurand, Commanding General, Sixth Service Command.

March 27. "War Worker Sleeps Here."

April 3. "The White Plague, 1943."

Guest speaker: Dr. Kendall Emerson, Managing Director, National Tuberculosis Association.

April 10. "Battle Stations at Home."

Guest speaker: Col. George Baehr, Chief Medical Officer, Office of Civilian Defense.

BEFORE THE DOCTOR COMES

Beginning Thursday, March 4, the American Medical Association program on WLS entitled "Before the Doctor Comes" will no longer be a part of the Homemakers' Hour but will be a separate program. It can be heard on Radio Station WLS (890 kilocycles) at 9:45 a. m. every Thursday up to and including May 27. Mrs. Harriet H. Hester will interview Dr. W. W. Bauer, Director of the Bureau of Health Education, or Dr. Austin E. Smith, Secretary of the Council on Pharmacy and Chemistry, on common home health problems. The titles of the next three programs are as follows:

March 18. "The Child with Headache" (Bauer).

March 25. "The Child with 'Tummy-ache'" (Bauer).

April 1. "The Child with Ear-ache" (Bauer).

MEDICAL LEGISLATION

MEDICAL BILLS IN CONGRESS

Changes in Status.—H. R. 812 has been favorably reported to the House, providing for the issuance of documentary evidence of United States citizenship. There are many native born Americans who are unable to present evidence of citizenship because of the fact that at the time of their birth laws were not in effect providing for the registration of births. The reported bill provides a method by which such persons may obtain a certificate of citizenship. The House Committee on Military Affairs has begun hearings on H. R. 997, a bill proposing to amend the National Defense Act by eliminating the Medical Administrative Corps in the Medical Department of the Regular Army and substituting therefor a pharmacy corps. H. R. 1749 has passed the House, extending the existing medical, hospital, domiciliary and burial benefits available to veterans of World War I to veterans of World War II. H. R. 1936 has been reported to the House, authorizing an appropriation of $2,000,000 for expansion of naval facilities for hospitalization of dependents of Navy and Marine Corps personnel, to provide the types of hospital service which shall be available to such dependents, to include dependents of Coast Guard personnel while the Coast Guard is operating as a part of the Navy, and to authorize hospital service outside the continental United States and in Alaska to certain persons not in the naval service. S. 739 has passed the Senate and House, providing that during the present war and for six months thereafter personnel of all components of the Army of the United States may be detailed as students at technical, professional and other educational institutions, or as students, observers or investigators at industrial plants, hospitals and other places. S. 786 has been passed by the Senate, providing for the rehabilitation of veterans disabled in the present war.

Bills Introduced.—H. R. 2017, introduced by Representative Angell, Oregon, provides for the payment of annuities to blind persons. The annuity payable to a blind person, the bill provides, will be paid in monthly instalments which are mathematically sufficient, when added to any other income of such person, to provide him with an average monthly income of $100, except that no such instalment will be for an amount in excess of $50. The term "blind person" is defined by the bill to mean a person who is 21 years of age or over, a citizen of and resident within the United States, including its territories and possessions, and who has not more than 20/200 of visual acuity in the better eye with maximum correction or whose field of vision is limited to 20 degrees or less from the fixation point in all quadrants. H. R. 2041, introduced by Representative Keefe, Wisconsin, would authorize appropriations to the Children's Bureau for payments to states for medical, nursing and hospital maternity and infant care for wives and infants of enlisted men in the armed forces of the United States of the fourth, fifth, sixth and seventh grades. The sum of $1,200,000 would be authorized for the fiscal year ending June 30, 1943 and for each fiscal year thereafter during the period of the present war and for six months following its termination, but not in excess of a total of $6,000,000. H. Res. 146, introduced by Representative O'Connor, Montana, contemplates the creation of a special committee of the House of Representatives, composed of five members to be appointed by the Speaker to (1) investigate the hospital problem throughout the United States in order to determine the hospital beds available for marines, soldiers, sailors, coast guardsmen, members of the merchant marine and any or all persons engaged in warfare; (2) investigate the use of existing civilian hospital facilities; (3) study the hospital problem in the United States as a whole as affecting not only war industries but industries in general throughout the United States, and (4) report in writing to the Congress the results of such investigations, together with its recommendations. H. R. 1824, introduced, by request, by Representative Lesinski, Michigan, would direct the Administrator of Veterans' Affairs to promulgate regulations pertaining to service connection, containing additional provisions requiring that as to those veterans who are shown to have been engaged in combat with an enemy of the United States during the present war or who are shown to have been subjected to other arduous conditions of active military or naval service of extra hazardous character, any subsequent disability resulting from an injury or disease which could have resulted by way of incurrence or aggravation traceable to such veteran's active military or naval service shall be adjudicated as directly due or aggravated by such service in line of duty. H. R. 1858, introduced by Representative Lane, Massachusetts, provides that in the administration of any laws and veterans' regulations conferring rights, privileges or benefits on persons who served in the military or naval forces of the United States during the World War, their widows, children and dependent relatives, those persons who served as members of the United States Merchant Marine during the period of the World War and who have been honorably separated from such service shall be held and considered to be veterans of such war.

STATE MEDICAL LEGISLATION

Arizona

Bill Passed.—H. 146 passed the house, March 1. It proposes to require every physician attending a pregnant woman to take a sample of her blood not less than ten days after the first visit and to submit such sample to an approved laboratory for a standard test for syphilis.

Arkansas

Bill Introduced.—S. 300, to amend the public welfare law, proposes to eliminate medical care and treatment for indigents. Only hospitalization would be furnished.

Bill Passed.—H. 432 passed the house, February 25. It proposes to prohibit the sale of appliances, drugs or medicinal preparations having special utility for the prevention of conception or venereal diseases without a license issued by the state board of pharmacy but excepts physicians and medical practitioners regularly licensed to practice medicine or osteopathy from the provisions of the proposal.

California

Bill Introduced.—A. 1627, to amend the Business and Professions Code, proposes to authorize the renewal of professional licenses of persons who have served in the armed forces, if they possessed a current, valid and unrevoked license at the time of entry into such service and if they apply for renewal within sixty days after the termination of such service.

Bill Passed.—A. J. R. 26 passed the assembly on January 29 and the senate on January 30. It requests Congress to enact S. 216 or H. R. 997, either of which would create a pharmacy corps in the United States Army.

Colorado

Bill Passed.—H. 525 passed the house on February 23 and the senate on March 3. It proposes to authorize the state board of medical examiners to grant and revoke license to practice chiropody, defined as the diagnosis and medical, surgical, mechanical, manipulative and electrical treatment of ailments of the human foot and leg, excepting amputation of the foot or leg or the administration of an anesthetic other than local or the reduction of dislocations or fractures. Surgical treatment is further defined to mean the surgical treatment of all minor foot or leg ailments excepting surgery on the bony structure or ligamentous tissues of the foot or leg.

Connecticut

Bill Introduced.—Substitute for S. 261, to amend the premarital examination law, proposes to allow the required certificate to be signed by a physician licensed to practice medicine or osteopathy in Connecticut or in any other state or territory of the United States or the District of Columbia.

Bill Passed.—S. 261 passed the senate, February 25. To amend the premarital examination law, it proposes to permit the required certificate to be signed by a physician licensed to practice medicine in the state of Connecticut or any state or territory of the United States or the District of Columbia.

Delaware

Bill Passed.—S. 49 passed the senate, March 1. It proposes to require all school children to be immunized against smallpox and diphtheria unless excused by a written statement by a reputable physician.

Georgia

Bills Introduced.—S. 188 and H. 552 propose the abolition of the State Boards of Medical Examiners, Chiropractic Examiners and Osteopathic Examiners and to create in their stead a State Commission of Medical Examiners, Georgia Commission of Chiropractic Examiners and State Commission of Osteopathic Examiners of Georgia. The powers, duties and qualifications would be the same except that members appointed by the governor must be approved by the secretary of state and confirmed by the senate. H. 336 proposes that the unlicensed practice of chiropractic, medicine and osteopathy shall be a public nuisance which may be abated by use of the injunctive process. The burden would be on the person charged to show that he has a validly issued license. H. 442 proposes to require every practicing physician to publish quarterly, in a newspaper of general circulation in the county wherein he practices, a list of the names and addresses of any patients who died during the preceding quarter while under his care and a statement of the cause of such death. H. 566 proposes to require all persons desiring to be married to present a certificate from a medical doctor showing freedom from venereal diseases of all kinds.

Idaho

Bill Introduced.—S. 140, to amend the occupational disease act, proposes to authorize the industrial board to summon the medical panel to attend hearings and authorizes the members of such panel to question witnesses.

Illinois

Bill Introduced.—S. 83, to amend the law relating to narcotic drugs, proposes to exempt therefrom the prescribing of certain attenuated narcotic preparations.

Indiana

Bills Introduced.—S. J. Res. 7 proposes the adoption of a joint resolution memorializing Congress to pass legislation establishing a pharmacy corps in the army. H. 370 proposes regulations for the admission of patients to county tuberculosis hospitals.

Bills Passed.—S. C. R. 14 passed the senate February 22. It proposes a resolution requesting Congress to enact necessary legislation to make available federal funds, after the war, for assistance to the several states in providing necessary and needed hospital facilities in industrial centers. S. 135 passed the house, March 3. It proposes to prohibit school authorities from employing food handlers who are addicted to drugs or who have tuberculosis or syphilis in an infectious stage and to require all school employees to undergo a physical examination for tuberculosis at least once every three years by a duly licensed doctor of medicine. H. 413 passed the house, February 22. It proposes that every person employed in a place serving food shall secure a certificate from the health officer showing freedom from contagious, infectious and communicable diseases and limits the health officer to a fee of $2 for such certificate and examination.

Iowa

Bill Introduced.—H. 407 proposes to require attending physicians to notify the department of public safety of the birth of any child and to require the department, or the hospital in which the child is born, immediately to take or cause to be taken footprints of such child.

Kansas

Bill Passed.—H. 332 passed the house, March 3. It proposes to require every physician to take or cause to be taken a sample of blood of any woman whom he diagnoses as being pregnant, such sample to be taken within fourteen days after the diagnosis is made.

Maine

Bill Introduced.—H. 1211 proposes the enactment of a cash sickness compensation act.

Maryland

Bill Passed.—H. 53 passed the house, February 24. It proposes to amend the insurance code by exempting from the provisions thereof any policy or contract granting solely and exclusively hospitalization insurance. The present law exempts any policy or contract issued by a nonprofit association.

Bill Enacted.—S. 84 has become chapter 59 of the Laws of 1943. It amends the medical practice act by eliminating the proviso that no two courses of medical lectures shall be either begun or completed within the same calendar year. This amendment is for the purpose of enabling graduates of accelerated medical courses to obtain licensure in Maryland.

Massachusetts

Bill Introduced.—S. 357 proposes to require the department of public health to provide for the care and treatment of dipsomaniacs and inebriates.

Bill Enacted.—H. 1013 has become chapter 41 of the Laws of 1943. It provides that physicians shall report all cases of wounds from a BB gun to the commissioner of public safety and to the police authorities.

Michigan

Bills Introduced.—S. 192, to amend the osteopathic law, proposes to authorize the Michigan State Board of Osteopathic Registration and Examination to modify, by order, the educational requirements prescribed by the present act, during the present emergency. H. 176 proposes a revision and codification of the existing workmen's compensation law.

Missouri

Bills Introduced.—S. 53 proposes to authorize cities of the third class, acting through their city councils, to levy and collect a license tax and to regulate physicians, chiropractors,

osteopaths, hospitals, sanatoriums, health schools and many other businesses and occupations. H. 299 proposes the creation of a state board of examiners in the basic sciences to examine in the subjects of anatomy, physiology, chemistry, bacteriology and pathology any person desiring to practice any form of the healing art. H. 300 proposes to require a practitioner of medicine, surgery, dentistry, optometry, osteopathy, chiropractic, chiropody and veterinary surgery, when using the prefix "Doctor" or "Dr." in connection with his name, to affix thereto suitable words clearly designating the degree held by such practitioner or the particular type of practice in which such person is engaged. H. 319 proposes the creation of a state board of naturopathic registration and examination and defines naturopathy as the method or science of treatment and prevention of human ailments through the use, method and application of such natural methods as, among other agencies, physiotherapy (electro-therapy, hydrotherapy, thermo-therapy, colon-therapy, actino-therapy), phyto-therapy, biochemic cell salts, dietetics, food concentrates, accessory food substances, hygiene, sanitation, first aid, clinical laboratory procedures, diagnosis, x-ray, as taught in the approved schools and colleges and institutions of naturopathy, provided that nothing in the proposal shall authorize any naturopath to practice materia medica, major surgery, osteopathy, chiropractic or any other of the legalized forms of the healing sciences.

Montana

Bill Introduced.—S. 172, to amend the medical practice act, proposes to increase the penalty for practicing medicine without a certificate from a fine of not more than $1,000 or not less than $250 or imprisonment in the county jail for not more than one year or not less than ninety days to a fine of not more than $2,000 or less than $500 or imprisonment in the state prison for not more than three years or not less than one year.

Bill Passed.—H. 118 passed the senate, February 26. To amend the medical practice act, it proposes to authorize the board of medical examiners to prescribe and enforce reciprocity requirements current with changes in standards of the practice of medicine and surgery.

Nebraska

Bills Introduced.—Legislative bill 298, to amend the motor vehicle law, proposes to define the term "while under the influence of alcoholic liquor or any drug." Legislative bill 371, to amend the motor vehicle law, proposes to authorize the admission in evidence of chemical analysis of the blood, breath, urine or other bodily substance of an accused person revealing the presence in the blood of the accused of 0.05 per cent or more by weight of alcohol.

Nevada

Bill Introduced.—A. 141 proposes to authorize the board of medical examiners to grant qualified physicians a temporary license to practice medicine, surgery or obstetrics in any particularly specified part of the state for and during the period of time limited by the license. The proposal would further authorize the board of medical examiners, from time to time, to restrict, enlarge or change the territorial limits stated in such temporary license.

New Jersey

Bills Introduced.—S. 68, to amend the compulsory vaccination law, proposes to make it mandatory instead of optional for the board of education to exclude from school any teacher or pupil who has not been vaccinated. A. 150 proposes to authorize the board of freeholders of any county of the second or third class to abolish the office of coroner and to create the office of chief medical examiner, such officer to be a licensed practitioner of medicine or surgery, resident in the county, of recognized ability and good standing in his community.

New Mexico

Bills Introduced.—H. 182 proposes to repeal the basic science law enacted in 1941. H. 219, to amend the law relating to school employees, proposes to prohibit the employment of teachers afflicted with syphilis and to require all school employees to present annually a certificate from a licensed physician showing freedom from any transmissible disease, which shall include tuberculosis and Wassermann tests.

New York

Bills Introduced.—S. 851 and A. 1144, to amend the workmen's compensation act, propose to authorize an injured employee to receive dental care and treatment, when necessary, and to select his own dentist to treat him. S. 884 proposes to prohibit scientific experiments or investigations on living dogs. A. 1125, to amend the medical practice act, proposes to postpone until July 1, 1944 the 1942 amendment exempting students, interns and resident physicians from the operation of the medical practice act. A. 1185, to amend the workmen's compensation law, proposes to authorize an injured employee to select the hospital to which he shall be sent for care and treatment.

North Carolina

Bill Introduced.—S. 211 proposes to amend the law relating to the incorporation of nonprofit hospital service corporations so as to authorize the operation of nonprofit medical service plans as well. The term "hospital service plan" is defined as including the contracting for hospital care, laboratory facilities, x-ray facilities, drugs, appliances, anesthesia, nursing care, operating and obstetric equipment, accommodations and any other services authorized or permitted to be furnished by a hospital under the laws of North Carolina and approved by the North Carolina Hospital Association or the American Medical Association. The term "medical service plan" is defined as including the contracting for medical, obstetric, surgical and any other professional services authorized to be furnished by a duly licensed physician.

Bills Passed.—S. 254 passed the senate, February 26. It proposes the creation of a Hospital Authority to engage in hospital construction, maintenance and operation. H. 429 passed the house on February 25 and the senate on February 26. It proposes that any person having tuberculosis in a communicable form who fails to follow the instructions given him by an agent of the county board of health as to precautions which he should take shall be imprisoned in the Prison Department of the North Carolina Sanatorium.

North Dakota

Bills Passed.—S. 77 passed the senate, February 22. It proposes to provide for the establishment, maintenance and duties of a district board of health and provides that the district health officer appointed by such board shall be a physician and surgeon regularly licensed to practice medicine and surgery in the state. H. 229 passed the house, February 23. It proposes a law for the organization and regulation of nonprofit hospital service plan corporations.

Ohio

Bill Introduced.—H. 244, to amend the law authorizing the creation of corporations to conduct a medical service plan, proposes that any physician in the armed forces shall be considered as residing and actively practicing in the county in which he resided and actively practiced at the time of his entrance into the armed forces, and proposes further that no certificate of authority or license to operate such a medical service plan shall be issued during the war emergency or within six months thereafter.

Oregon

Bill Introduced.—S. 284 proposes to authorize the payment of compensation to employees disabled by an occupational disease.

Bills Passed.—H. 103 passed the senate, February 26. To amend the law relating to the examination of handicapped children, it proposes to authorize examinations of the eyes of such children to be made and the findings certified to by qualified and licensed optometrists. H. 350 passed the Senate, February 26. It proposes to authorize commissioned medical officers of the army to execute the required certificate necessary under the state premarital examination law.

Rhode Island

Bill Introduced.—H. 653 proposes to authorize the director of education to arrange for annual lectures to high school students on the problems of cancer and the means for its care and control.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

ARIZONA

Society News.—The Pima County Medical Society was addressed in Tucson, January 12, by Capt. Robert J. Stein, M. C., U. S. Army, on "An Open Psychiatric Division in a General Hospital"; Major Sigmund Mage, M. C., U. S. Army, "Present Status of Surgery in Treatment of Gastroduodenal Ulcer," and Lieut. Col. William J. Kennard Jr., M. C., U. S. Army, "Personal Experiences in Action in Eastern Front."

ARKANSAS

Norman Baker Loses Again in Court.—Norman Baker, former operator of alleged "cancer cure" hospitals in Arkansas and Iowa, serving a four year federal sentence on charges of using the mails to defraud, has lost a $25,000 civil action in the Arkansas supreme court to one of his former associates, Rennie A. Bellows, who died during pendency of the suit, according to the Davenport *Times*, March 2. Affirming a Carroll County chancery decree, the high tribunal ruled that Baker should pay this amount to the estate of Bellows to satisfy his alleged promise to give Bellows an interest in his hospital at Eureka Springs. Bellows had served as superintendent of the hospital.

ILLINOIS

Society News.—Dr. W. Kress McIntyre, St. Louis, discussed "Cancer of the Rectum" before the Madison County Medical Society, Granite City, February 5.——Dr. Isaac A. Abt, Chicago, discussed "Sulfa Drugs in the Treatment of Children" before the Livingston County Medical Society, February 18, at Pontiac. A sound film on "Peptic Ulcer" was also shown at the meeting.

Chicago

Personal.—Dr. Francis B. Gordon has been promoted to associate professor of bacteriology at the University of Chicago School of Medicine.——Nathaniel Leverone was elected president of Goodwill Industries recently. One of the group's major projects for the coming year will be to formulate plans for training disabled soldiers.

Dr. du Vigneaud Addresses Chemists.—At a dinner meeting of the Chicago Section of the American Chemical Society, March 18, Vincent du Vigneaud, Ph.D., professor and head of the department of biochemistry, Cornell University Medical College, New York, will discuss "The Chemical Nature of Biotin." Following the dinner, group meetings will be held to discuss various subjects.

Annual Alpha Kappa Kappa Banquet.—The Alpha Kappa Kappa Fraternity chapters of the city held their annual tri-chapter banquet at the Chicago Athletic Club, March 12. Dr. Herman L. Kretschmer, treasurer of the American Medical Association, was toastmaster. The three participating chapters are Xi of Northwestern University Medical School, Nu of Chicago University School of Medicine and Eta of the University of Illinois College of Medicine. Allan Rogers of Northwestern was chairman of the tri-chapter banquet committee.

Dean David J. Davis to Retire.—Dr. David J. Davis, associated with University of Illinois College of Medicine for twenty-nine years, will retire September 1 as professor and head of the department of pathology, bacteriology and public health and dean of the medical school. His successor has not yet been named. Dr. Davis, who was born in Racine, Wis., in 1875, will reach the university's compulsory retirement age of 68 in August. Dr. Davis graduated at Rush Medical College in 1904, taking his degree of doctor of philosophy at the University of Chicago in 1906. He became professor of pathology at Illinois in 1914 and dean in 1925.

Stieglitz Memorial Lecture.—Carl S. Marvel, Ph.D., professor of organic chemistry, University of Illinois, Urbana, Ill., will deliver the third lecture under the Julius Stieglitz Memorial Lectureship on April 2 in Kent Theater, University of Chicago, on the subject "The Structure of Vinyl Polymers." The lectureship was established in 1940 under the auspices of the Chicago Section and the alumni of the chemistry department of the University of Chicago to honor Julius Stieglitz, Ph.D., who at the time of his death in 1937 was professor of chemistry emeritus at the University of Chicago. Dr. Stieglitz was a charter member of the Council on Pharmacy and Chemistry of the American Medical Association, serving continuously from 1905 to 1926, and chairman of its committee on rules and procedures.

INDIANA

Outbreak of Smallpox.—Fifty-one cases of smallpox have been reported in a recent outbreak in Lake County, 40 cases being recorded in Gary alone. No deaths were reported.

Changes in Health Personnel.—Dr. Paul W. Ferry, Kokomo, has been elected president of the Kokomo Board of Health.——Dr. John H. Green, North Vernon, was recently named secretary of the North Vernon Board of Health.——Dr. Robert O. Scott, Charlottesville, has been chosen coroner of Hancock County.——Dr. Everett A. King, Hardinsburg, Ky., director of the tricounty health unit of Breckenridge, Hancock and Meade counties, Ky., has been named full time health director for Evansville and Vanderburgh County.

The Mann Lecture.—The second annual Frank C. Mann Lecture was delivered by Dr. Warren H. Cole, professor and head of the department of surgery, University of Illinois College of Medicine, Chicago, on "Advances in Gastric Surgery." Dr. Andrew C. Ivy, director of the Naval Medical Research Institute, Bethesda, Md., who was originally scheduled to give the lecture, had to cancel his engagement. The Frank C. Mann Lectureship in Applied Physiology was founded and presented to the University of Indiana School of Medicine in 1941 by the Phi Beta Pi medical fraternity. The first lecture was delivered by Dr. Mann, Rochester, Minn., in whose honor the lectureship was established.

IOWA

State Medical Meeting in Des Moines.—The Iowa State Medical Society will hold its ninety-second annual session at the Hotel Fort Des Moines, Des Moines, April 29-30, under the presidency of Dr. Frank P. Winkler, Sibley. Out of state speakers will include Drs. Harry L. Smith, Rochester, Minn., on "Coronary Disease: Its Recognition and Management"; Arthur W. Proetz, St. Louis, "Practical Management of Headache," and Virgil S. Counseller, Rochester, "Pelvic Surgery as Related to General Practice." Iowa physicians who will participate in the program will include:

Dr. Ralph E. Gray, Eldora, Social and Medical Aspects of the Boys' Training School at Eldora.
Dr. Harold E. Farnsworth, Storm Lake, Care of the Premature Infant in General Practice.
Dr. Andrew W. Bennett, Iowa City, Malaria Epidemic in Iowa.
Dr. Anthony C. Pfohl, Dubuque, Surgery in Medical Emergencies.
Dr. Raymond J. Harrington, Sioux City, Intrathoracic Tumors as a Diagnostic Problem.
Dr. James A. Greene, Iowa City, Tropical Medicine in Iowa in the Postwar Era.
Dr. Paul O. Nelson, Emmetsburg, Early Diagnosis and Treatment in Tuberculosis.
Dr. Elmer L. De Gowin, Iowa City, Blood Banks in Iowa.
Dr. Julian D. Boyd, Iowa City, Body Measurements in Physical Diagnosis.
Dr. Frank R. Peterson, Iowa City, Management of Peptic Ulcers Requiring Surgery.
Dr. Burton Raymond Weston, Mason City, A Surgical and Clinical Contribution to Right Sided Pain.
Dr. Edmund S. Donohue, Sioux City, Delayed Bone Grafts.
Dr. John B. Synhorst, Des Moines, Surgery of the Colon.
Dr. Lewis M. Overton, Des Moines, Use of Sulfonamides in Open Wounds (Clinical Study).
Dr. John W. Dulin, Iowa City, Use of Stainless Steel Wire as Suture Material.
Dr. Christian B. Luginbuhl, Des Moines, Acute Pulmonary Conditions Simulating Abdominal Disorders.
Dr. Earl C. Montgomery, Atlantic, Intraocular Neuritis.
Dr. Frank Harold Reuling, Waterloo, Glioma of the Optic Nerve.
Dr. Kenneth C. Swan, Iowa City, Abnormal Retinal Correspondence.
Dr. John E. Rock, Davenport, Staphylococcic Septicemia, Tonsillar in Origin.
Dr. Dean M. Lierle, Iowa City, The Right to Hear.

At the annual banquet Dr. Walter A. Sternberg, Mount Pleasant, will be the toastmaster. Virgil M. Hancher, LL.D., president, State University of Iowa, Iowa City, will deliver the principal address. Dr. Winkler and Dr. Lee R. Woodward, Mason City, president-elect of the state society, will also address the banquet. Groups meeting during the session of the state society include the State Society of Iowa Medical Women, Iowa Public Health Association and Iowa Anesthesiological Society. There will also be luncheons of alumni of Northwestern University Medical School, Chicago, and the State University of Iowa College of Medicine, Iowa City. The woman's auxiliary to the Iowa State Medical Society will hold its annual session, April 29-30. The speakers will include Drs. Ransom D. Bernard, Clarion, on "Present Trend of Medical Legislation" and Carl F. Jordan, Des Moines, "The State Board of Health and the Blood Donor Program."

MARYLAND

State Milk Regulations Amended.—The state department of health announced the following amendment to the state milk regulations:

By January 1, 1945, all milk and milk products consumed raw shall be from herds or additions thereto which have been found free from Bang's disease, as shown by blood serum tests for agglutinins against Brucella abortus made in a laboratory approved by the director of health. All such herds shall be retested at least every twelve months and all reactors removed from the herd. A certificate identifying each animal by number and signed by the laboratory making the test shall be evidence of the above test.

According to preliminary figures of 48 cases of undulant fever reported in Maryland in 1942, 47 occurred in the counties and one in Baltimore City. There were no deaths.

Venereal Disease Council. — Baltimore *Health News* announces the organization of a new public health-social agency known as the Baltimore Venereal Disease Council. It was appointed under the auspices of the Baltimore Mobilization Committee and aims to project a modern attack on syphilis, gonorrhea and other venereal disease as a responsibility of community agencies as a whole rather than as one unit. Three study committees have been formed, one on legislation, one on rehabilitation and one on medicine, public health and pharmacy. Efforts will be made to assist military authorities in the current venereal disease control program, but the major efforts will be toward a long range plan that will improve the venereal disease record of Baltimore.

MASSACHUSETTS

Tufts Alumni Dinner.—The Tufts Medical Alumni Association will hold its annual meeting and dinner on Wednesday evening, March 31, at the Copley Plaza Hotel, Boston. Hon. Paul V. McNutt, chairman of the War Manpower Commission, Washington, D. C., will be the guest speaker. Other speakers will be Leonard Carmichael, LL.D., president of Tufts College, who will discuss "The Medical School and the War," Dr. Alonzo K. Paine, Boston, president of the association, "Alumni Activities," and Dr. Frederick W. Maroney, Brooklyn College, New York, "The Twenty-Five Year Class."

MICHIGAN

Discussion of Neuropsychiatry in Selecting the Armed Forces.—The Michigan Society of Neurology and Psychiatry is sponsoring a panel discussion on "Importance of Neuropsychiatry in the Selection of Men for the Armed Forces" at its meeting in Detroit, March 25. National and state directors of Selective Service and representatives of the armed forces will speak.

Industrial Medical and Surgical Conference.—The committee on industrial health of the Michigan State Medical Society and the department of postgraduate medical education, University of Michigan, Ann Arbor, are cooperating in a postgraduate industrial medical and surgical conference to be held at the Horace H. Rackham Memorial, Detroit, April 8. Among the speakers will be:

Dr. James G. Townsend, Bethesda, Md., The Present Status of Medical Programs in War Industries.
Dr. Roy D. McClure, Detroit, Study on Minor Burns.
Dr. Max R. Burnell, Flint, The Employment of Women in Industry.
J. J. Bloomfield, Bethesda, Industrial Hygiene in the War Industries.
Mr. Andrew T. Court, Labor Economics Section, General Motors Corportion, Detroit, Industrial Illness and Disability Analysis.
Dr. Herman H. Riecker, Ann Arbor, Heart Disease in Industry.
Dr. Louis Schwartz, Bethesda, Dermatitis in Industry.
Dr. Barney J. Hein, Toledo, Ohio, Management of the More Common Industrial Fractures.
Dr. Parker Heath, Detroit, Traumatic Eye Injuries and Epidemic Keratoconjunctivitis.
Dr. Carl E. Badgley, Ann Arbor, Back Injuries—Medical Legal Complications.
Dr. Frank F. Tallman, Lansing, Mental and Psychological Problems Relative to Industrial Employment.
E. P. Chester, director, bureau of rehabilitation service, state department of education, Hartford, Conn., The Employment and the Evaluation of the Handicapped Worker in Industry.
L. J. Carey, general counsel, Michigan Mutual Liability Insurance Company, Detroit, Medicolegal Phases of Industrial Employment.
John W. Gibson, chairman, Michigan Department of Labor and Industry, Lansing, Viewpoint of the Michigan Department of Labor and Industry.
John Lovett, general manager, Michigan Manufacturers Association, Detroit, Viewpoint of the Employer.
Dr. Carl M. Peterson, secretary, Council on Industrial Health, American Medical Association, Chicago, Viewpoint of the Medical Profession.

At the banquet in the evening the speakers will be Gov. Harry F. Kelly, Lansing, and Charles F. Kettering, Dr. Engring., vice president in charge of research, General Motors Corporation, Detroit.

MINNESOTA

Mayo Foundation Lectures. — Brigadier Walter Rowley Bristow, London, chief orthopedic surgeon, Royal Army Medical Corps, gave a Mayo Foundation Lecture in Rochester, February 8, on the "Management of War Casualties in British Forces." Dr. Harrison F. Flippin, Philadelphia, gave a similar lecture, February 5, on the "Management of Pneumonia."

Personal. — Dr. Wilburn O. B. Nelson has been named health officer of Fergus Falls to succeed the late Dr. William A. Lee.——F. O. Hanson, D.D., for nearly ten years superintendent of Swedish Hospital, Minneapolis, has resigned his position to become director of appeal at Gustavus Adolphus College, St. Peter, where he will conduct a campaign for funds for a new college library, the *Journal-Lancet* reports.

Educational Program on Vaccination.—A campaign has been launched in Minneapolis to educate the public to the need of vaccination. "Before it's too late—vaccinate" is the theme of the program which is being carried out under the endorsement of the Minneapolis Civilian Defense Council and under the direction of the city health commissioner. An intensive publicity program is now under way. Victory Aides canvassed every home with a booklet explaining the vaccination situation and urging the cooperation of the public.

MONTANA

Personal.—Dr. George B. Wright, Kalispell, has been named health officer of Flathead County to succeed Dr. Albert A. Dodge, Kalispell, who held the position for twenty-one years, according to the *Journal-Lancet*.

Society News.—Dr. Sylvester N. Berens, Seattle, addressed the Silver Bow County Medical Society in Butte, February 23, on "Low Back Pain with Sciatica."——Dr. Roger Anderson, Seattle, discussed "Treatment of Fractures" before the Mount Powell County Medical Society in Anaconda recently.

NEVADA

New Director of Maternal Health.—Dr. Julius B. Askew, formerly of San Francisco, has been appointed director of the division of maternal and child health and crippled children's services of the state department of health, Carson City. Newspapers report that under the appointment Dr. Askew will also serve as acting state epidemiologist. Dr. Frederica A. Keep, Wellington, has been named field physician for the division.

NEW JERSEY

The Martland Lecture.—Dr. Cornelius P. Rhoads, New York, will deliver the ninth Harrison Stanford Martland Lecture, March 17, of the Essex County Anatomical and Pathological Society of the Academy of Medicine of Northern New Jersey in Newark. His subject will be "Cancer and the Role Played by Vitamins and Endocrines."

NEW YORK

Only Emergency Cases Accepted at Hospital.—Only emergency cases will be accepted in the future at the Elizabeth A. Horton Memorial Hospital, Middletown, because of the critical nursing shortage, the New York *Times* reported on February 21. Elective cases not requiring immediate treatment will be turned down. The patient average at the hospital is 104 a day, it was stated.

New Regulations Govern Blood Donors and Blood Derivatives.—The public health council of the state department of health has adopted regulations governing human blood donors, human whole blood, human plasma, human serum or other human blood derivatives used for transfusion purposes, it was announced on March 1. The new regulations are designed to safeguard all phases of blood transfusion, which has become increasingly important because of the widespread use of human blood products both in the armed services and in civilian practice, and will help meet the need for basic standards to insure the safety of human blood products which has been experienced by hospitals and laboratories engaged in processing human blood and in providing transfusion services. The requirements were adopted only after long deliberation by the council and a critical review by representatives of several hospitals, the National Institute of Health, the Office of Civilian Defense, the Medical Society of the State of New York and other interested agencies. The action is said to be the first begun by a state body to govern human blood plasma and other blood derivatives. The subject has been under consideration by the council since 1941, and in June 1942 a committee was appointed to study the subject and prepare a suitable amendment to the sanitary code.

New York City

Second Counseling Service.—The mayor's committee on wartime care of children opened its second information and wartime counseling service for working mothers in the Fort Greene Health Center, Brooklyn, February 21. The first service was opened in the Harlem Health Center on January 25.

The Harvey Lecture.—Dr. Samuel W. Clausen, professor of pediatrics, University of Rochester School of Medicine, will deliver the sixth Harvey Society Lecture of the current series at the New York Academy of Medicine March 18. His subject will be "The Absorption of Vitamin A and Its Storage in the Tissues."

Proposed Research Center in Zoological Park.—*Science* reports that the New York Zoological Society is planning to establish a research center in Zoological Park for the study of animal diseases in relation to human disease problems and for a conservation exhibit. The society will receive $3,000,000 under the terms of a postwar program for the city, it was stated.

Course for Physicians on Kenny Method.—On March 29 the New York University College of Medicine will conduct a course for physicians on the modern concepts of poliomyelitis. The course is designed to cover epidemiologic, pathologic and physiologic aspects of poliomyelitis together with a diagnosis of the disease and its treatment by chemical, serologic, orthopedic and physical therapeutic means including the Kenny method. A series of eight lectures at weekly intervals will be given by visiting lecturers from various medical schools throughout the country and demonstrations of the various technics will be given in the hospitals. A practical course for training physical therapy technicians opened recently at New York University under the auspices of the school of education. Additional information can be obtained from the secretary, New York University College of Medicine, 477 First Avenue.

NORTH CAROLINA

Changes in Health Officers.—Dr. Samuel P. Burt, Louisburg, has been named health officer of Franklin County to succeed Dr. Richard F. Yarborough, Louisburg.——Charles L. Williams Jr., New Bern, assistant surgeon, U. S. Public Health Service, has been appointed officer of Lenoir County to succeed Dr. Zebulon V. Moseley, Kinston.

Nathalie Gray Bernard Lectures.—The first Nathalie Gray Bernard Lectures were given in January by Lieut. Comdr. Albert R. Behnke Jr., M. C., U. S. Navy, on "The Military Environment Primarily in Relation to Changes in Barometric Pressure." The lectureship was established last summer by the students and faculty of Bowman Gray School of Medicine of Wake Forest College, Winston-Salem, and will be considered an annual event. Mrs. Bernard, for whom the lectures are named, has given many generous donations to the school.

Anatomist Dies.—Francis Huntington Swett, Ph.D., since 1930 professor of anatomy at the Duke University School of Medicine, Durham, died of heart disease on February 10, aged 49. In 1922 Dr. Swett received his doctor of philosophy degree at Yale University, New Haven, Conn., where he had been a member of the faculty since 1919, first as assistant in zoology and later in anatomy. He was on the staff of Johns Hopkins University School of Medicine, Baltimore, from 1922 to 1925, when he joined Vanderbilt University School of Medicine, Nashville, Tenn.

OHIO

Frank E. Bunts Lecture.—Dr. J. Eastman Sheehan, New York, delivered the Frank E. Bunts Lecture at the Cleveland Clinic, February 26, on "Recent Observations of War Wounds in England and Their Care."

Personal.—Dr. Benjamin R. McClellan, Xenia, formerly president of the Ohio State Medical Association, was recently presented with a scroll in recognition "of his outstanding service to the community and to his fellowmen" by the local Rotary Club, of which he is a charter member and past president. ——Robert S. Shelton, Ph.D., has been promoted to the position of scientific director of the William S. Merrell Company, pharmaceutical manufacturers of Cincinnati, and will be responsible for activities relating to research and product improvement. Since 1934 Dr. Shelton has been organic research chemist with the Merrell Company and associate professor of organic chemistry at the Cincinnati College of Pharmacy. He received his degree of doctor of philosophy at Cornell University in 1933.

OKLAHOMA

Annual Meeting in Oklahoma City.—The 1943 meeting of the Oklahoma State Medical Association will be held in Oklahoma City, May 11-12. The theme of the two day session will be adapted to the war effort as it pertains to the health of the public.

Report on Trachoma Program.—The state department of health has issued a report on its program of trachoma control, which was instituted July 30, 1941. Since its inception the program has been extended into sixteen counties in the eastern and southern part of the state. Ninety-one clinics were held during the period July 30, 1941 to Dec. 31, 1942. Of the 8,591 patients examined 1,262 positive cases were found and given treatment.

PENNSYLVANIA

Typhoid Carriers.—Sixty-six chronic typhoid carriers were detected in Pennsylvania by the state department of health in 1942, according to *Pennsylvania's Health.*

Philadelphia

Personal.—After more than twenty-five years as medical superintendent of the Home for Consumptives, Dr. William J. Enders resigned recently. Dr. Enders, who is now living at Bushkill, Pa., is now consulting physician for the home.—— The honorary degrees of doctor of science were awarded by the Philadelphia College of Pharmacy and Science, at its recent commencement, to Drs. William A. Feirer, director of the medical research laboratories of Sharp and Dohme, Inc., and Harriet L. Hartley of the city department of health.

Pittsburgh

Chemical Award Goes to Dr. King.—At a dinner on February 18 in the University Club, the Pittsburgh Award, given annually for "outstanding work in chemistry" by the Pittsburgh Section of the American Chemical Society, was presented to Charles Glen King, Ph.D., scientific director in charge of research of the Nutrition Foundation, New York. Dr. King is on leave of absence from the University of Pittsburgh as professor of chemistry. Speakers at the dinner included Dr. King, who spoke on recent developments in nutrition; Alexander Silverman, Sc.D., head of the department of chemistry; Charles F. Lewis, LL.D., director of the Buhl Foundation, and Henry J. Heinz II, president of H. J. Heinz and Company.

TEXAS

Changes in Health Personnel.—Drs. Charles M. Covington, Alto, was recently appointed epidemiologist of the Travis-Bastrop County Health Unit to succeed Dr. Hugh Shane, Austin, who entered military service.——George G. Howard, passed assistant surgeon, U. S. Public Health Service Reserve, has been placed in charge of the Parker and Palo Pinto County Health Unit.—— Dr. William O. Funderburk, Elkhart, was recently named health officer of Anderson County, succeeding Dr. Fred E. Felder, Palestine. Dr. Funderburk formerly served as county judge.

UTAH

New Professor of Surgery.—Dr. Philip B. Price, who had been professor of surgery at the Cheeloo University School of Medicine, Shantung, China, until the hostilities started, has been named head of the newly created department of surgery at the University of Utah School of Medicine, Salt Lake City. Recently Dr. Price has been associate in surgery at the Johns Hopkins University School of Medicine, Baltimore. The University of Utah School of Medicine has heretofore been a two year school but under a reorganization during the past year has been added to the list of four year medical schools.

WEST VIRGINIA

Cooperative Medical Education Program Approved.—Arrangements have been completed between the board of governors of West Virginia University and the board of visitors of the Medical College of Virginia, Richmond, for the enrolment each year at the latter institution of twenty West Virginia students who complete the two year medical course at the West Virginia University School of Medicine, Morgantown. After the first year, forty West Virginia medical students will be enrolled at the Medical College of Virginia. The bill (S. B. 85) authorizing the action was passed unanimously by the senate February 23 and by the house of delegates March 3. It was sponsored by the West Virginia State Medical Association and marks the first time in the history of medical education that such an arrangement has been made

between two medical schools in separate states. The courses of the two medical schools will be coordinated so that the students at West Virginia University will have the same premedical training as the students at the Virginia school. The bill further provides that no student shall be eligible to take the courses which may be established unless he has been a bona fide resident of West Virginia for at least five years, has completed the medical course at the university and has been chosen for the purpose by the president and faculty of the West Virginia University School of Medicine.

WISCONSIN

New Director of Health Service and Tuberculosis.—Dr. Allan A. Filek, Green Bay, has been appointed director of the division of local health service and tuberculosis control of the state board of health. Dr. Filek graduated at Rush Medical College, Chicago, in 1933 and for the past six years has been district health officer for the sixth sanitary district.

Health Committee for Association of Commerce.—A new health committee has been named for the Green Bay Association of Commerce. The committee is now making a survey of the health department activities in the state during the past year, the results of which are to be entered in the national intercity health conservation contest sponsored by the American Public Health Association.

Personal.—Dr. Herman F. Weber, Newburg, was honored at a dinner, February 3, to celebrate his seventy-fifth birthday. Dr. Weber has been practicing in Newburg for the past forty-seven years.——Dr. John J. Rehorst has been appointed health officer of Fond du Lac on a part time basis until a permanent full time appointment can be made, filling the vacancy that occurred when Dr. Robert L. Dana obtained a leave of absence to enter military service.

Special Society Election.—Dr. Arnold S. Jackson, Madison, was chosen president-elect of the Wisconsin Academy of Surgery at its meeting in Milwaukee, January 27, and Dr. Jaros F. Zivnuska, Milwaukee, was installed as president. Major Jerry W. McRoberts, Sheboygan, M. C., U. S. Army, was the retiring president. Other officers include Dr. Gervase S. Flaherty, South Milwaukee, secretary, and Dr. James G. Garland, Milwaukee, treasurer. The next meeting of the academy will be held in Madison, May 19.

GENERAL

Fellowships for Research on Quinine.—Two fellowships are offered by the Cinchona Products Institute of New York for clinical or pharmacologic research on quinine or the other alkaloids of cinchona. They carry a yearly stipend of $2,000 plus necessary laboratory or routine expenses. Further details may be secured from Cinchona Products Institute, Inc., 10 Rockefeller Plaza, New York.

New Executive Secretary of American Hospital Association.—Mr. George Puffer Bugbee, superintendent of City Hospital, Cleveland, has been appointed executive secretary of the American Hospital Association, effective May 1. He will succeed Dr. Bert Caldwell, who has been named secretary emeritus. Mr. Bugbee has served as credit and office manager and assistant director of the University Hospital, Ann Arbor, Mich.

Dr. Busch to Direct Red Cross for Eastern Area.—Dr. John F. Busch, since 1937 associated with the division of tuberculosis control of the Georgia Department of Public Health, Atlanta, has been appointed director of medical and health service for the Eastern Area of the American Red Cross, with headquarters in Alexandria, Va. Dr. Busch graduated at the Medical College of the State of South Carolina, Charleston, in 1927.

Conference of Industrial Hygienists.—The sixth annual meeting of the National Conference of Governmental Industrial Hygienists will be held at the Hotel Seneca, Rochester, N. Y., May 24, followed by meetings of the American Industrial Hygiene Association and the American Association of Industrial Physicians and Surgeons, May 25-27. These sessions were originally scheduled for May 17-20, but because of conflict with other conferences the dates were changed, according to *Industrial Hygiene*. On May 26 a joint session of the three associations with the New York State Associated Industries will be held at the Eastman Theater.

Examinations of Orthoptic Council.—The American Orthoptic Council announces that written examinations will be held at various cities in the country on September 9. Only those passing the written examination will be permitted to take the oral and practical tests in Chicago on October 9. Applications on official forms must be received before August 1. All communications should be addressed to the American Orthoptic Council, 23 East Seventy-Ninth Street, New York. The council was organized in 1938 by a group of ophthalmologists, representing the Section on Ophthalmology of the American Medical Association, and the American Academy of Ophthalmology and Otolaryngology, to supervise the training of technicians.

Pan American Congress of Ophthalmology.—The triennial meeting of the Pan American Congress of Ophthalmology will be held in Montevideo, Uruguay, November 4-9, 1943 under the presidency of Dr. Harry S. Gradle, Chicago. A recent announcement states that in spite of the present world condition it was decided to go ahead with the organization and preparation of scientific work for the meeting. If by June 1943 the world situation still seems unfavorable, the meeting will be postponed until November 1944. The first day of the session has been designated as the "inaugural session." The second day will be given to a consideration of social ophthalmology, the morning session to cover "Prevention of Blindness in the Americas" and the afternoon "The Status of Trachoma in the Americas." The third day will be devoted to research in ophthalmology, eight studies to be selected by the committee on arrangements. The fourth day of the session will be given over to excursions and festivities. The session will be concluded with a consideration of glaucoma, individual topics to be "The Preglaucomatous State—Its Diagnosis and Treatment," "New Ideas on Glaucoma Derived from Gonioscopy," "Estimation and Mechanism of the Destructive Effects of Ocular Hypertension" and "Surgical Intervention in Glaucoma—How Far Can Medical Treatment be Continued?"

Few Fatalities Charged to Exposure to Cold.—Fatalities resulting directly from exposure to cold by actually freezing to death or suffering severe frostbite in homes inadequately or poorly heated are few and far between, according to a release from the Metropolitan Life Insurance Company. There is no indication that the fuel shortage will add materially to the toll this year, it was stated. Around 350 deaths each year on the average are charged to exposure to excessive cold. Where death actually occurs from this cause, it is usually outdoors and the victim often is a person under the influence of liquor or mentally deranged, it was stated. Where death from exposure does occur in the home, past experience shows that the victim in most cases was either very old or a sick person, living alone and unable on account of an infirmity to tend the fire. A study covering the years 1933-1940 showed that some of the Eastern states critically affected this winter by fuel shortages registered death rates from cold below the general average of 2.8 per million observed in the United States as a whole. The rates were 1.6 in both New York and New Jersey, 1.9 in Massachusetts and 2.7 in Connecticut. Higher rates than the average occurred in Vermont, 3.1, and New Hampshire, 3.6, while the highest rates among those states affected by the wartime heating problem were recorded in Maryland, 4.3; Rhode Island, 4.5, and Maine, 6.6. The highest rates in the country prevailed in the mountain states of Nevada, 24.0; Montana, 14.9, and Wyoming, 14.4. North Dakota, 10.1, is the only other state with a rate exceeding ten deaths per million of population. The lowest rates were recorded in California, 0.7, and the District of Columbia, 0.6. Referring to an analysis made some years ago of the records of deaths ascribed to excessive cold among their company's industrial policyholders, it was stated that more than one third of the victims were reported as being either under the influence of intoxicating liquors or mentally deranged. These individuals were found in the open, where they had been exposed to cold weather for long periods. A number of deaths occurred among persons who had fallen down and, on account of age, were unable to get up and were subjected to prolonged exposure to cold. Others succumbed on hunting or fishing trips, when lost in a storm or while at work in the open.

CORRECTIONS

Mental Symptoms Following Use of Atabrine.—In the Current Comment under the foregoing title in THE JOURNAL, March 6, page 765, in the sixth line from the end the word "malaria" should be substituted for the words "quinine daily."

Superficial Vascularization of the Cornea.—In the abstract of Dr. H. R. Sandstead's article in THE JOURNAL, February 20, page 624, entitled "Superficial Vascularization of Cornea," the fourth line from the bottom of the second column should read ". . . 5 mg. of riboflavin twice daily for forty-nine days . . ." or 10 mg. daily.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Jan. 23, 1943.

Infective Hepatitis in the War

Jaundice is one of the disorders of armies in the field. In the last great war a few of the outbreaks were traced to Leptospira icterohemorrhagica (spirochetal jaundice) but others defied investigation. The coincident prevalence of intestinal disease led to the view that the jaundice was due to ascending catarrh of the bile passages and many were labeled catarrhal jaundice; but in fatal cases the liver sometimes showed a focal necrosis, never involving the bile passages, which pointed to systemic infection. Except for one outbreak in Scandinavia in 1925-1927, no comparable outbreaks were seen until the disease appeared again in the British Expeditionary Force in 1939. However, it has now been noted among troops in the United Kingdom, the United States, northern Ireland, West Africa, Malta, Iceland and especially the Middle East. Its incidence in enemy occupied Europe is thought to be considerable.

In an army medical bulletin it is stated that new and valuable facts have come to light about infective hepatitis since 1936, when jaundice developed in a group of people inoculated several months before with yellow fever vaccine. Since then children and others passively immunized with mumps and measles convalescent serum have developed similar jaundice, which they have sometimes transmitted to contacts and laboratory workers handling serum from patients with the disease. American troops immunized with certain batches of yellow fever vaccine have also been affected, and jaundice has been discovered among the donors of the vaccine. It has been shown that at least one of the causative organisms of infective hepatitis can (1) pass through bacteria trapping filters, (2) withstand the action of phenol, freezing and drying and (3) be propagated in serum-tyrode-chicken-embryo medium. Thus it behaves as a virus, and further examination is handicapped by the fact that it has not been transmitted to any animal.

The incubation period of the natural disease is about a month, but after serum as much as three or four months—a difference not explained. The general immunity appears to be high; only about 10 per cent of exposed persons show obvious jaundice, and after injection of infected serum less than 30 per cent. It seems possible that the jaundice seen from time to time in those taking arsphenamine is due to the same virus attacking a liver damaged by the drug. The same may hold for the hepatitis attributed to trinitrotoluene and other industrial poisons. The diagnosis may be easy during an outbreak or after immunization but may be difficult in single cases. Leptospiral jaundice may be excluded by animal inoculation, serologic tests or the blood picture. The death rate is low and death is unusual before the second or third week.

Increased Food Restrictions to Save Shipping

In order to devote as much shipping as possible to the carriage of military supplies, the consumption of food is to be further scaled down. Lord Woolton, minister of food, says that in 1943 there will be a continuance of the tightening up process already in force in 1942. Restriction was achieved mainly by applying points rationing to several more foods and reducing on July 26 each consumer's points from 24 to 20 a month. At the same time the cheese allowance was doubled to the generous one of half a pound a week, which may have to be reduced soon. When the year 1942 opened, points rationing was confined to canned meats, fish and beans. During the year rice, sago, tapioca, dried peas, beans and lentils, dried fruits, canned fruits and vegetables, condensed milk, cereal breakfast foods, syrup and molasses, biscuits and rolled or flaked oats were added.

The Ministry of Food has made its contribution to shipping needs by trimming imports, mainly by bringing in concentrated foods, such as dried egg instead of eggs in the shell, and by pushing the consumption of home produced foods, such as potatoes, against those imported. The ministry helped to insure a cheap and plentiful supply of potatoes and tried by various means, including a rise in price, to discourage consumption of bread. Wheat makes up a large part of our food imports, and to reduce this amount the extraction of flour was increased from 75 to 85 per cent, and white bread disappeared for the duration of the war. Two additional ways of saving on grain imports remain. To increase the extraction of wheat to 90 per cent or more would encounter the same vigorous opposition as did the increase to 85 per cent; the addition of home produced oats and barley to the national flour has been decided on.

"Iatrogenic Disorders"

Sir Arthur Hurst has introduced into medicine the term "iatrogenic disorders," iatrogenic being derived from Greek words meaning "generated by the physician"; but surgeons, radiologists and pathologists are included in his criticism. In a lecture delivered to the Medical Society of the Middlesex Hospital on the subject he began by pointing out that in hysteria the patients are so suggestible that the symptoms largely depend on or are the result of the method of examination. Investigating the diminution of the visual fields in a case of hysteria, the physician will find as he moves around the clock that the field will become progressively narrowed in spiral fashion, ending in practically no visual field. But if then he plots the field, moving the spot from the middle of the tiny field toward the periphery, asking the patient when he can no longer see the spot, he will be able to unwind the field until the normal visual field returns. Similarly, paresthesia of the arm or leg in a hysterical paralysis is the patient's idea of what the physician ought to find in a case of organic paralysis.

The terms "soldier's heart" and "effort syndrome," when tentatively applied to cases, suggest things to the patient, who becomes more likely to succumb to the malady. An example was a gardner who enjoyed perfect health until he was examined by a medical board for the army. Extrasystoles were found and thought to be of some significance. He was sent to London to be electrocardiographed and thence to a heart hospital for further investigation. He saw constantly around him the main clinical symptoms of cardiac cases and picked up the "atmosphere." Soon he was experiencing these same symptoms himself, his state being induced purely by suggestion and the initial fixation of his attention on his heart by frequent examinations and the flourishing of stethoscopes and other fearsome instruments. Sir Arthur warned his audience to be very careful about telling patients about their blood pressure, as this often caused unnecessary introspection. He knew of a spa full of people worried about their blood pressure. Those with high pressure took the waters to get it down; those with low pressure took the waters to get it up!

Mucous colitis has always been regarded by Hurst as a mythical malady. He has pointed out that mucous membranes secrete mucus for their own protection. The clear mucus passed with scybala protects the colonic mucous membrane from mechanical injury; that passed with unformed stools after a purgative protect it from chemical injury. This mucus contains no inflammatory cells; endoscopy reveals a healthy mucous membrane. To diagnose mucous colitis is to create an anxiety neurosis. People will luxuriate in it and their chief aim in life becomes a minute examination of the proportion of mucus in their stools and how much can be coaxed out by colonic irri-

gation. Bowel neurosis is largely the product of physicians giving patients the impression that their bowels are swamps of putrid matter bearable only if constantly purged and swilled out with frequent and copious floods of water. Radiologists are also responsible for mischief. The x-ray report of "gastroptosis," translated to the patient as "dropped stomach," conjures up to him terrible things. Treatment with a belt forces the stomach farther into the pelvis. It is not borne in mind that some stomachs are longer than others, just as some people's noses are. The x-ray diagnosis of "duodenitis," which is sometimes passed on to the patient, is purely iatrogenic.

Surgeons who fall back on "chronic appendicitis" as a diagnosis are really admitting failure. One of the almost constant signs of chronic cholecystitis is an appendix scar. The diagnosis of adhesions to explain the recurrence of pain after appendectomy is another sign that the real trouble has not been reached.

Finally, Sir Arthur dealt with a subject which he has made his own—peptic ulcer. Here, as in many other cases, the use of x-rays has made us slack in eliciting proper histories and physical signs before making a diagnosis; gastroscopy should be done in all cases diagnosed. The process of a barium meal is liable to start a functional dyspepsia, and two barium meals are certain to. People once assured that they have no ulcer should be prevented from trying to obtain a different diagnosis at another hospital. Anastomotic ulcers and their serious complications are purely the result of surgery. Partial gastrectomy in a straightforward case is so uncertain of producing permanent cure as to make it not warrantable. Only total gastrectomy is certain of producing cure, and rigid medical treatment is the next best thing.

The Health of Women War Workers

In its report, the Select Committee on National Expenditure deals with the health and welfare of women in factories. It asks the government to secure a satisfactory medical service in all factories doing government work. Greater use should be made of women doctors. A central industrial health advisory committee should be set up to advise on all questions of industrial health and on the coordination of medical services to meet the requirements of the war effort. Regional industrial health advisory committees should also be set up to advise the Ministry of Labor. These committees, working in cooperation with medical organizations, could do much to reduce the incidence both of industrial disease and of general sickness among industrial workers.

The estimated increase in the number of women in industry (excluding civil defense) in the first three years of the war is over a million and a half. Taking munitions and certain essential industries and services together, the increase is nearly two million. The number of recruits with no previous experience of factory life is large and there is a considerable proportion of married women with their own special problems. Except in the case of ordnance factories and certain private undertakings there has been no selective examination on joining. Had the necessary medical staff been available, the committee would have strongly recommended that this be done. It draws attention to the waste of public money in transferring to factories away from home of women not physically fit for factory work. In considering the most suitable length of the working day, regard must be paid to the time that women are often obliged to spend on domestic duties and shopping, as well as in travel to and from their place of work. Many married women are now doing the equivalent of two full time jobs. Instances are given of women working twelve hours a day, spending two or three hours in traveling and on top of this undertaking household duties. It is obvious why under such circumstances sickness should be more frequent among women than among men workers.

TORONTO

(From a Special Correspondent)

March 1, 1943.

The Movement Toward Compulsory Health Insurance in Canada

In the speech from the throne, presented at the opening of Parliament a month ago, there appeared a clause which indicated that the government proposed to take action to provide a comprehensive national plan of social insurance, including health insurance. For the past eighteen months an Advisory Committee on Health Insurance, set up within the Department of Pensions and National Health, has been studying proposals relating to health insurance, having in view the drafting of legislation, either federal or provincial or a combination of the two, to provide health insurance for the Canadian people. Putting the two preceding facts together, there would appear to be every indication that health insurance legislation will be discussed in the Parliament of Canada this coming session.

During the past fifteen years the Canadian Medical Association has given considerable attention to health insurance and allied problems. Study committees were established throughout the Dominion. The general secretary of the association was sent to Europe in 1937 to visit a number of countries where health insurance was in operation. The Canadian Medical Association has long since gone on record with respect to the principles which should be incorporated in health insurance legislation when and if such legislation becomes effective. The association had not, however, up until January 1943, expressed itself either in favor of or opposed to the inauguration of health insurance in Canada.

Realizing that health insurance was apparently imminent and that a very high percentage of the people of our country were in favor of some such measure, the general council of the Canadian Medical Association was convened in special session in Ottawa on January 17 and 18 to resurvey its position in respect to the problem. The attendance was seventy-eight, with all the provinces well represented. At the end of two days' discussion, the general council unanimously adopted the following resolution:

Whereas, The objects of the Canadian Medical Association are:

1. The promotion of health and the prevention of disease;
2. The improvement of health services;
3. The performance of such other lawful things as are incidental or conducive to the welfare of the public; and

Whereas, The Canadian Medical Association is keenly conscious of the desirability of providing adequate health services to all the people of Canada; and

Whereas, The Canadian Medical Association has for many years been studying plans for the securing of such health services; therefore be it

Resolved, That:

1. The Canadian Medical Association approves the adoption of the principle of health insurance;
2. The Canadian Medical Association favors a plan of health insurance which will secure the development and provision of the highest standard of health services, preventive and curative, if such plan be fair both to the insured and to all those rendering the service.

A select committee of the House of Commons has been established to study the matter. Representatives of the Canadian Medical Association will appear before that committee and endeavor to interpret the views of the medical profession of Canada.

Summing up, it may be said that the Canadian Medical Association takes this position in respect to the subject:

1. That, in whatever plan or plans may be devised to provide health services to the people of Canada, a standard of service equal to or higher than that which now obtains should be guaranteed; and

2. That the financial arrangements which will be necessary to implement an ideal plan must be fair both to those who provide the services and to those who are served.

Deaths

Joseph Francis Elward ✠ Washington, D. C.; Georgetown University School of Medicine, Washington, 1919; specialist certified by the American Board of Radiology, Inc.; also a pharmacist; formerly clinical instructor in radiology at the George Washington University School of Medicine and associate professor of roentgenology at his alma mater; in 1938 was elected secretary of the American Therapeutic Society; member of the American Roentgen Ray Society, Radiological Society of North America, Inc., American College of Radiology and the American Radium Society; served during World War I; served as roentgenologist to the Sibley Memorial, George Washington University and National Homeopathic hospitals; formerly consultant in roentgenology to the U. S. Veterans Administration; aged 52; died, February 6, in Plains, Pa., of coronary thrombosis.

Wilhelm Siegmund Frei, New York; Georg August-Universität Medizinische Fakultät, Göttingen, Prussia, Germany, 1913; in 1911 served as an assistant at the Robert Koch Institute for Infectious Diseases in Berlin; during World War I served in the Hamburg Bacteriological Laboratory and as an army medical officer; from 1919 to 1929 was an assistant at the University Clinic of Dermatology of Breslau; in 1923 was lecturer and in 1926 professor of dermatology at the Breslau University; in 1929 was made physician in chief of the dermatologic department of Berlin-Spandau Municipal Hospital; devised the diagnostic Frei test for venereal lymphogranuloma; in 1937 was appointed resident physician in dermatology, holding this post until July 1, 1938 at the Montefiore Hospital, where he died, January 27, of tuberculosis; aged 57.

Joseph Andrew Hyams ✠ New York; Columbia University College of Physicians and Surgeons, New York, 1905; specialist certified by the American Board of Urology, Inc.; member of the American Urological Association; fellow of the American College of Surgeons; formerly associate professor of clinical urology at the New York Post-Graduate Medical School, Columbia University; served as a lieutenant in the medical corps of the U. S. Army during World War I; attending urologist and director of the service of urology at the New York Post-Graduate Medical School and Hospital and Dispensary; director of the department of urology at the Gouverneur Hospital; consulting urologist, All Souls Hospital, Morristown, N. J.; aged 58; died, January 26, of coronary thrombosis.

Jefferson L. Angell, Kingsville, Mo.; Ensworth Medical College, St. Joseph, 1893; aged 85; died, January 7, in Kansas City of uremia.

Gordon C. Anson, Ironton, Mo.; Homeopathic Medical College of Missouri, St. Louis, 1900; aged 64; died, December 9, in Bonne Terre of angina pectoris.

Charles Willett Austene, Centralia, Mo.; University of Missouri School of Medicine, Columbia, 1901; aged 66; died, January 13, in a hospital at Fulton of pneumonia.

John Carleton Bachop, Sheakleyville, Pa.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1883; aged 88; died, January 28, of coronary occlusion.

William E. Barron ✠ Addison, N. Y.; College of Physicians and Surgeons, Baltimore, 1891; formerly served as mayor; past president of the Steuben County Medical Society; at one time surgeon for the Buffalo and Susquehanna Railroad; aged 76; died, December 21, in the Veterans Administration Facility, Bay Pines, Fla.

Charles Bickel, Trenton, Mo.; Medico-Chirurgical College of Kansas City, Mo., 1902; aged 72; died, February 8, in the Cullers Hospital of cerebral hemorrhage.

Henry Lyons Bienenfeld, Brooklyn; University of the City of New York Medical Department, 1884; for many years chairman of local school board number 20 in New York and at one time health officer of the Port of New York; aged 86; died, January 5, in the Israel Zion Hospital.

Siegfried Blach, Brooklyn; Universität Heidelberg Medizinische Fakultät, Baden, Germany, 1923; member of the Medical Society of the State of New York; aged 42; died, December 11.

Walter Ernst Boehm ✠ Richmond Hill, N. Y.; Schlesische-Friedrich-Wilhelms-Universität Medizinische Fakultät, Breslau, Prussia, Germany, 1922; aged 46; died, January 6, in the Flower and Fifth Avenue Hospitals of carcinoma.

Jacques de Lorimier Bourgeois, Montreal, Que., Canada; University of Montreal Faculty of Medicine, 1939; on Dec. 1, 1940 was commissioned a surgeon lieutenant in the Royal Canadian Naval Volunteer Reserve; aged 29; died, November 8, as the result of enemy shell fire while he was operating on an American soldier on board ship at Oran, North Africa.

David Ritchey Braden ✠ Mission, Kan.; St. Louis University School of Medicine, 1920; member of the Missouri State Medical Association; in 1921 was connected with the U. S. Public Health Service; for five years assistant medical director of the Illinois Life Insurance Company in Chicago; member of the Myers Clinic in Kansas City, Mo., from 1927 to 1937; aged 54; died suddenly, January 19, of coronary occlusion.

George Cecil Browne, Oakland, Calif.; College of Physicians and Surgeons, Baltimore, 1899; member of the California Medical Association; served as medical adviser of draft board number 6 during World War I; recently examining physician for draft board number 59; on the staff of the Alameda (Calif.) Hospital; aged 66; died, January 20, of heart disease.

Howard Sheldon Bulkeley ✠ Rhinebeck, N. Y.; University and Bellevue Hospital Medical College, New York, 1912; for several years town health officer; aged 56; died, January 17, in the Northern Dutchess Health Service Center.

Benjamin Brabson Cates, Knoxville, Tenn.; University of Pennsylvania Department of Medicine, Philadelphia, 1888; member of the Tennessee State Medical Association; formerly professor of principles and practice of surgery and clinical surgery at the Tennessee Medical College; served on the staffs of the Knoxville General and St. Mary's hospitals for many years; aged 77; died, January 21, of pneumonia and myocarditis.

George Edwin Cecil, Hazlehurst, Miss.; University of Tennessee Medical Department, Nashville, 1893; served during World War I; aged 75; died in January.

James Thomas Adam Clarke, Winnipeg, Man., Canada; Manitoba Medical College, Winnipeg, 1901; aged 69; died, January 23, of coronary occlusion.

William Hallett Cole, New Germany, N. S., Canada; Medical School of Maine, Portland, 1883; aged 87; died, December 2.

Asa Weston Collins, San Francisco; Cooper Medical College, San Francisco, 1903; member of the California Medical Association; formerly adjunct professor of surgery at the College of Physicians and Surgeons of San Francisco; was made a Chevalier of the Legion of Honor by the French government for many years' service as chief surgeon of the French Hospital; served during World War I; fellow of the American College of Surgeons; aged 67; died, January 19, in Palo Alto, Calif., of heart disease.

William Edward Costello, Dubuque, Iowa; State University of Iowa College of Medicine, Iowa City, 1894; member of the Iowa State Medical Society; aged 76; died, January 17, of heart disease.

Archibald Nelson Currie, Kalispell, Mont.; Rush Medical College, Chicago, 1899; aged 68; died recently of carcinoma of the lung.

Edward Gates Davis, Kansas City, Kan.; College of Physicians and Surgeons, Medical Department, Kansas City University, Kansas City, Kan., 1898; member of the Kansas Medical Society; aged 77; died, January 23, in the Bethany Hospital of arteriosclerosis.

Madison Pope Deadwyler, Maysville, Ga.; Jefferson Medical College of Philadelphia, 1897; served as mayor of Maysville for many years; aged 69; died, December 3, of diabetes mellitus.

Cornelius J. Donovan, Lovington, Ill.; St. Louis College of Physicians and Surgeons, 1893; aged 72; died, January 15, in St. Mary's Hospital, Decatur, of cerebral hemorrhage.

John Clark Farr, Hoboken, N. J.; Long Island College Hospital, Brooklyn, 1902; member of the Medical Society of New Jersey; formerly medical director of a sanatorium bearing his name; served on the staffs of the Hasbrouck Heights (N. J.) Hospital, St. Mary's Hospital, Hoboken, and the North Hudson Hospital, Weehawken; aged 73; died, January 24, of cerebral hemorrhage.

James Vincent Foley, Pocatello, Idaho; University of Tennessee College of Medicine, Memphis, 1931; member of the Idaho State Medical Association; director of the Bannock County Health Unit; first lieutenant in the medical reserve corps of the U. S. Army not on active duty; aged 36; died, January 11, in the Pocatello General Hospital of a subdural hemorrhage from a basal skull fracture incurred in a fall.

Edmond Bland Ballard Fulliam Jr., Muscatine, Iowa; Bennett Medical College, Chicago, 1913; member of the Iowa State Medical Society; formerly health officer of Muscatine;

served overseas in the medical corps of the U. S. Army during World War I; aged 51; died, January 10, in Fort Lauderdale, Fla., of cerebral hemorrhage.

Frederick Carl Gunkel, Cincinnati; Medical College of Ohio, Cincinnati, 1884; aged 83; died, January 22, of chronic valvular heart disease.

Flora Cornelia Moss Jackson, Peoria, Ill.; State University of Iowa College of Homeopathic Medicine, Iowa City, 1895; aged 80; died, January 2, of acute cardiac dilatation.

Amelia R. Keller, Indianapolis; Central College of Physicians and Surgeons, Indianapolis, 1893; at one time assistant professor of pediatrics at the Indiana University School of Medicine; aged 72; died, January 28, in the Indianapolis City Hospital of coronary occlusion.

Henry Cowles Kent, Indianola, Miss.; Vanderbilt University School of Medicine, Nashville, Tenn., 1893; veteran of the Spanish-American War and World War I; aged 71; died, January 15, in the Veterans Administration Facility, Memphis, Tenn., of coronary occlusion.

Robert McKee Lapsley ✠ Keokuk, Iowa; College of Physicians and Surgeons, Keokuk, 1890; Rush Medical College, Chicago, 1891; at one time professor of ophthalmology, otology and rhinolaryngology and treasurer of Keokuk Medical College; member of the American Academy of Ophthalmology and Otolaryngology; fellow of the American College of Surgeons; aged 72; on the staff of the Graham Hospital; president of the staff of St. Joseph's Hospital, where he died, January 5, of miliary tuberculosis.

John Newton Franklin Latimer, Atlanta, Ga.; Meharry Medical College, Nashville, Tenn., 1908; aged 67; died, January 17, of septicemia.

David Edward Lenker, Sunbury, Pa.; Jefferson Medical College of Philadelphia, 1888; served as Northumberland County jail physician; aged 80; died, December 25, in the Mary M. Packer Hospital of cerebral hemorrhage.

Archibald Stuart Lewis, Greensburg, Ky.; University of Louisville (Ky.) Medical Department, 1885; aged 81; died, January 4, of injuries received when struck by a truck.

Hiram John Lloyd ✠ Mankato, Minn.; Chicago College of Medicine and Surgery, 1911; on the staffs of the Immanuel Hospital and St. Joseph's Hospital, where he died, December 14, of a cerebral accident, aged 65.

Charles Allen Luce, Amityville, N. Y.; Bellevue Hospital Medical College, New York, 1890; member of the Medical Society of the State of New York; served as acting assistant surgeon in the U. S. Public Health Service; for many years president and at one time director of the First National Bank and Trust Company; aged 77; was found dead, January 21, of a self-inflicted bullet wound.

Harry Kenyon McCall, Sioux City, Iowa; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1901; aged 66; died, January 12, of arteriosclerosis.

Albert Newton Mackey, Aledo, Ill.; Bellevue Hospital Medical College, New York, 1893; served during World War I; aged 79; died, February 11, of coronary thrombosis.

George Jefferson Mancill, Indianola, Miss.; Memphis (Tenn.) Hospital Medical College, 1911; member of the Mississippi State Medical Association; served as a first lieutenant in the medical corps of the U. S. Army during World War I; recently an examining physician for the Sunflower County Selective Service System and chairman of the county infantile paralysis foundation; aged 54; died, January 15, in the King's Daughters Hospital, Greenville, of lobar pneumonia.

Freeman Simeon Messenger, Middleton, N. S., Canada; University of the City of New York Medical Department, New York, 1893; served as mayor through two terms and for many years as a member of the town council; a coroner for Annapolis County and a member of the provincial medical board; aged 75; died, November 24.

Alexander J. Nielson, Salt Lake City; George Washington University School of Medicine, Washington, D. C., 1907; at one time a school teacher in the public schools; aged 71; died, January 16, of coronary occlusion.

William Henry Norrish, Kenmore, N. Y.; Niagara University Medical Department, Buffalo, 1890; aged 77; died, December 27, of cerebral hemorrhage.

John Aloysius O'Mara ✠ Spring Lake, N. J.; Georgetown University School of Medicine, Washington, D. C., 1933; an associate obstetrician at the Fitkin Memorial Hospital, Neptune; member of the medical draft board number 6, Monmouth County; aged 36; died, January 20, of coronary thrombosis.

Kristinn Olafson, Cando, N. D.; University of Manitoba Faculty of Medicine, Winnipeg, Man., Canada, 1933; member of the North Dakota State Medical Association; aged 40; died accidentally, December 2, of carbon monoxide poisoning.

Levon Papazian, Nelson, B. C., Canada; McGill University Faculty of Medicine, Montreal, Que., 1943; was granted a posthumous degree from McGill University on February 3; aged 23; died, December 24.

Frank Placide Perret, Jeanerette, La.; Tulane University of Louisiana School of Medicine, New Orleans, 1928; member of the Louisiana State Medical Society; aged 38; died, January 10, of hemorrhage and peptic ulcer.

Don Preston Peters, Lynchburg, Va.; University of Virginia Department of Medicine, Charlottesville, 1902; member of the Medical Society of Virginia; served during World War I; fellow of the American College of Surgeons; member of the visiting surgical staff, Virginia Baptist, Marshall Lodge Memorial, Guggenheimer Memorial and Lynchburg General hospitals; surgeon, State Colony, Colony; aged 65; died, January 20, of coronary thrombosis.

George Franklin Porter, Centerville, Kan.; University Medical College of Kansas City, Mo., 1910; member of the Kansas Medical Society; served in the medical corps of the U. S. Army during World War I; aged 56; died, December 7, of acute cardiac dilatation.

Clarence Quinan ✠ San Francisco, Calif.; Washington University School of Medicine, St. Louis, 1897; lieutenant colonel in the medical reserve corps of the U. S. Army not on active duty; veteran of the Spanish-American War and World War I; from 1901 to 1908 instructor in medicine and assistant professor of pathology at the University of California Medical School, serving in the latter position and as acting head of the department, 1909-1910; aged 72; died, December 9, in Los Gatos of cerebral hemorrhage.

Theron S. Reynolds, Bancroft, Mich.; Homeopathic Medical College of Missouri, St. Louis, 1898; aged 74; died, December 3, of heart disease.

Eugene Stanley Robbins, New Bedford, Mass.; Bellevue Hospital Medical College, New York, 1894; member of the Massachusetts Medical Society; aged 70; died, January 18, in West Palm Beach, Fla., of cerebral hemorrhage.

William A. Robertson, St. Joseph, Mo.; Marion-Sims College of Medicine, St. Louis, 1897; formerly county physician; aged 70; on the staff of the Missouri Methodist Hospital, where he died, January 10, of coronary occlusion and arteriosclerosis.

Solucius L. Russell, Yadkinville, N. C.; University of Tennessee Medical Department, Nashville, 1892; aged 84; died, January 17, of hypertensive heart disease with right hemiplegia.

Henry Middleton Rutledge IV ✠ Laurens, S. C.; Medical College of the State of South Carolina, Charleston, 1936; aged 32; on the staff of the Laurens County Hospital, where he died, January 18, of pneumonia following injuries received in a traffic accident.

Charles Edward Scharf ✠ Chicago; Chicago College of Medicine and Surgery, 1913; served as physician for the health department of Chicago; aged 58; one of the original founders, member of the board of directors and attending surgeon, Belmont Community Hospital, where he died, January 25, of cardiorenal disease.

Irving Sherman ✠ Brooklyn; Tufts College Medical School, Boston, 1924; specialist certified by the American Board of Pathology, Inc.; blood transfusionist and hematologist to the Israel Zion, Brooklyn Women's, Adelphi and the Brooklyn Doctors hospitals; aged 43; died, January 24, of lymphosarcoma.

Edwin Dudley Smith, Woodmere, N. Y.; College of Physicians and Surgeons, New York, 1889; aged 74; died, January 16, of cerebral hemorrhage.

Ira Mason Smith, Princeton, W. Va.; Atlantic Medical College, Baltimore, 1908; member of the West Virginia State Medical Association; aged 66; on the staff of the Mercer Memorial Hospital, where he died, January 10, of myocarditis and heart block.

James Ritchie Sparkman, Spartanburg, S. C.; Medical College of the State of South Carolina, Charleston, 1907; member of the South Carolina Medical Association; aged 58; died, January 4, of hypertensive heart disease.

John Gurdon Steele, Bristol, Pa.; University of Pennsylvania Department of Medicine, Philadelphia, 1898; member of the Medical Society of the State of Pennsylvania; served in the medical corps of the U. S. Army during World War I; aged 68; died, January 27, in the Roseneath Farms Sanatorium, Philadelphia, of chronic myocarditis.

Robert G. Steele, Melmore, Ohio; Western Reserve University Medical Department, Cleveland, 1883; in 1933 a dinner was given by the Seneca County Medical Society in recognition of his fifty years in the practice of medicine; aged 85; died, January 15, of arteriosclerosis and acute enterocolitis.

Forrest Ray Stewart, Ironton, Ohio; Ohio State University College of Medicine, Columbus, 1917; member of the Ohio State Medical Association; past president of the Lawrence County Medical Society; member of the state house of representatives 1941-1942 and elected again for 1943-1944; during World War I served overseas as a captain, U. S. Army, in the 145th ambulance corps; formerly health officer of Lawrence County; on the staff of the Lawrence County General Hospital; aged 53; died, January 18, of coronary thrombosis.

Edwin Pangman Stickney ✠ Arlington, Mass.; Harvard Medical School, Boston, 1892; member of the New England Pediatric Society; on the staff of the Symmes Arlington Hospital; aged 80; died, January 8, of cerebral hemorrhage.

Howard George Stimus, Camden, N. J.; Jefferson Medical College of Philadelphia, 1902; member of the Medical Society of New Jersey; also a pharmacist; aged 67; died, January 17, in the Cooper Hospital of cerebral hemorrhage and hypertension.

Frank Montgomery Stites ✠ Hopkinsville, Ky.; University of Louisville Medical Department, 1889; aged 74; died, January 26, of coronary occlusion.

Frances Sumner Janney Stoddart, Riverton, N. J.; Woman's Medical College of Pennsylvania, Philadelphia, 1890; aged 76; died, January 26, of cerebral hemorrhage.

John William Stofer, Gallup, N. M.; University Medical College of Kansas City, Mo., 1908; member and past president of the New Mexico Medical Society; past president and for many years secretary-treasurer of the McKinley County Medical Society; fellow of the American College of Physicians; local surgeon for the Atchison, Topeka and Santa Fe Railroad; member of the staff of St. Mary's Hospital; aged 63; died, January 16, of cerebral hemorrhage.

David Owen Thomas ✠ New Kensington, Pa.; Baltimore Medical College, 1905; served overseas during World War I; colonel in the medical reserve corps of the U. S. Army not on active duty; served as head of the Office of Civilian Defense in New Kensington; aged 70; died, January 14, in the Veterans Administration Facility, Aspinwall, of myocarditis.

Samuel Gately Tracy, New York; Bellevue Hospital Medical College, New York, 1890; aged 75; died, December 7, of heart disease and bronchopneumonia.

Hoyte Sale Trice, Tupelo, Miss.; Medical Department of Tulane University of Louisiana, New Orleans, 1910; aged 58; died, January 5, of congestive heart disease.

John Charles Tritch, Findlay, Ohio; Homeopathic Hospital College, Cleveland, 1877; member of the Ohio State Medical Association; fellow of the American College of Surgeons; past president of the Hancock County Medical Society; served as a member of the board of education of Findlay and as coroner of Hancock County; consulting chief of staff and member of the surgical staff of the Findlay Hospital, where he died, January 21, of arteriosclerosis, aged 85.

Robert Carroll Walker, Waycross, Ga.; University of Pennsylvania School of Medicine, Philadelphia, 1914; member of the Medical Association of Georgia; past president of the Ware County Medical Society; served during World War I, and as city physician; on the staff of the Ware County Hospital; aged 53; died, January 9, of pulmonary tuberculosis.

Charles Curtis Wallin, Lewistown, Mont.; University of Michigan Department of Medicine, Ann Arbor, 1902; member of the Montana State Medical Association; veteran of the Spanish-American War; health officer of Fergus County and of Lewistown; at one time county physician and deputy health officer of Meagher County; aged 67; died, January 5, in St. Joseph's Hospital of acute leukemia and pneumonia.

Thomas Pinckney Waring ✠ Savannah, Ga.; College of Physicians and Surgeons, New York, 1892; member of the House of Delegates of the American Medical Association in 1906; member of the Southern Surgical Association; fellow of the American College of Surgeons; medical director and owner of the Oglethorpe Sanatorium; formerly superintendent and surgeon in charge of the Telfair Hospital; served as visiting surgeon to Savannah and St. Joseph's hospitals; aged 75; died, January 8.

George Maxey Watkins, Walnut Ridge, Ark.; Memphis (Tenn.) Hospital Medical College, 1909; member of the Arkansas Medical Society; major in the medical reserve corps of the U. S. Army not on active duty; served with the same rank during World War I; aged 69; died, November 29, of cerebral hemorrhage.

Miles Weller, Beverly Hills, Calif.; Denver and Gross College of Medicine, 1904; at one time taught obstetrics at the Gross Medical College in Denver; aged 77; died, January 12, of cardiac asthma.

John W. Wells, Magnolia, Ky.; University of Louisville (Ky.) Medical Department, 1894; on the board of the T. J. Samson Community Hospital, Glasgow; aged 72; died, December 17, of angina pectoris.

Lightfoot A. West, Memphis, Tenn.; Meharry Medical College, Nashville, 1907; surgeon on the staff of the Collins Chapel Connectional Hospital and formerly surgeon on the staff of the Mercy Hospital; aged 57; died, December 27, of myocarditis.

Fletcher Kindry White, Sewickley, Pa.; Western Reserve University Medical Department, Cleveland, 1884; aged 84; died, November 27, in the Sewickley Valley Hospital of bronchopneumonia, arteriosclerosis and senility.

Frances Hulbert White, Fairport, N. Y.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1896; member of the Medical Society of the State of New York; aged 72; died, January 3, of coronary thrombosis.

Walter Walton White Jr., Baltimore; University of Maryland School of Medicine, Baltimore, 1896; served on the staffs of the Church Home and Infirmary, St. Joseph's Hospital and the Maryland General Hospital; aged 67; died, January 2, of carcinoma of the spine.

Edward Watts Morris Whitehead, Salisbury, N. C.; University of Pennsylvania School of Medicine, Philadelphia, 1924; had served as director of the old North Carolina Bank and Trust Company; aged 44; died, December 14, of coronary thrombosis.

Lanson C. Wilson, Hayward, Calif.; Eclectic Medical Institute, Cincinnati, 1887; aged 83; died, December 31.

Harro Woltmann ✠ Mansfield, Ohio; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1905; fellow of the American College of Physicians; for many years actively interested in the work of the Richland County Tuberculosis and Health Association, serving as a member of the executive committee and chairman of the program committee of that organization; served as chief of staff, Mansfield General Hospital; aged 60; died, December 27, of tuberculosis.

James Byron Young ✠ Indianapolis; Medical College of Indiana, Indianapolis, 1901; served as a captain in the medical corps of the U. S. Army during World War I; member of the medical section of the American Life Convention and the Association of Life Insurance Medical Directors; in 1920 became medical director and in 1934 elected a member of the board of directors of the Indianapolis Life Insurance Company; formerly chief of staff at St. Francis Hospital; aged 64; died, February 7, in St. Vincent's Hospital of coronary occlusion and influenza.

Thomas A. E. Young, Morristown, N. Y.; Trinity Medical College, Toronto, Ont., Canada, 1897; veteran of the Spanish-American War; aged 66; died, January 22, in the A. Barton Hepburn Hospital of chronic nephritis.

DIED WHILE IN MILITARY SERVICE

Joseph William Mendoza, Pittsburgh; University of Pittsburgh School of Medicine, 1933; called to active duty April 1, 1941 as a captain in the medical corps of the Army of the United States; aged 31; was killed, January 2, in an aircraft accident somewhere near Newfoundland while serving as flight surgeon with the army air corps.

Abbott Kenyon Bailey, Acting Assistant Surgeon, Lieutenant, junior grade, U. S. Navy, Portsmouth, Va.; Jefferson Medical College of Philadelphia, 1942; an intern at the Norfolk Naval Hospital; aged 25; died, December 31, of a self-inflicted bullet wound.

Bureau of Investigation

MISBRANDED PRODUCTS

Abstracts of Notices of Judgment Issued by the Food and Drug Administration of the United States Department of Agriculture

[EDITORIAL NOTE.—These Notices of Judgment are issued under the Food, Drug and Cosmetic Act and in cases in which they refer to drugs and devices they are designated D. D. N. J. and foods, F. N. J. The abstracts that follow are given in the briefest possible form: (1) the name of the product, (2) the name of the manufacturer, shipper or consigner, (3) the date of shipment, (4) the composition, (5) the type of nostrum, (6) the reason for the charge of misbranding and (7) the date of issuance of the Notice of Judgment—which is considerably later than the date of the seizure of the product and somewhat later than the conclusion of the case by the Food and Drug Administration.]

A-Z Tablets.—A-Z Sales Company, Waterbury, Conn., Distributors, and Strong, Cobb and Company, Inc., Cleveland, shippers. Shipped June 8, 1940. Composition: essentially potassium acid tartrate, calcium gluconate, sulfur, podophyllum, golden seal, starch and a small amount of an iron compound. Misbranded because labels and accompanying circular falsely represented the product to be efficacious in treating asthma, asthmatic spasms, bronchitis, catarrh, congestion of the upper respiratory system, hay fever, head colds and nasal irritations.—[*D. D. N. J., F. D. C. 494; September 1942.*]

Enrich.—Offered for sale by Vita Health Food Company, Washington, D. C. Composition (according to labeling): "Each fluid-oz. contains 600 mg. peptonized iron, 200 U. S. P. units vitamin B_1, 100 micrograms vitamin B_2 (riboflavin), rice bran extract (which contributes other factors of the vitamin B complex), manganese as the citrate, calcium and sodium as the glycerophosphates. . . . Two teaspoons of Enrich 4 times daily furnish 99 milligrams of iron. . . . Two teaspoons of Enrich 4 times daily supply four-fifths, 80%, of the entire day's needs (minimum U. S. standard)." Misbranded because of false and misleading statements on an accompanying placard, "New hope for folks over 40. This combination of iron and vitamin B_1 has helped to restore pep and vigor to thousands. If you suffer from low vitality, neuritis, nervousness, or other nerve disorders, stomach distress, colitis, or constipation, loss of appetite, pale cheeks, lips, eyelids, or gums, poor functioning, iron-poor blood, cold hands or feet, loss of vigor, you may need more of the vital elements iron and vitamin B_1. Enrich benefits your blood, nerves, glands, and every organ of your body if you lack iron and vitamin B_1."—[*D. D. N. J., F. D. C. 496; September 1942.*]

Dr. Carey's Marsh Root Prescription 777 Tablets and Dr. Carey's Marsh Root Laxative Pills.—Earle Soap Manufacturing Company, Baltimore. Shipped Sept. 13, 1940. Composition: tablets consisted essentially of plant drugs, including a laxative, and an alkaloid-bearing drug with methyl salicylate, sodium salicylate, potassium nitrate, sugar, starch and talc; the pills were composed essentially of plant material, including a laxative drug. Both products misbranded because their names falsely represented that they consisted essentially of marsh root, whereas both contained therapeutically active ingredients other than this substance. Further misbranded because statements on and in the packages represented that the tablets would be efficacious as a diuretic, a stimulant of the kidneys and urinary system and a cure, preventive or mitigation of kidney diseases; and that the pills would be effective as a tonic, that they were gentle as Nature, were not habit forming and were of value for sufferers with kdiney or bladder troubles.—[*D. D. N. J., F. D. C. 500; September 1942.*]

Dr. Shreve's Anti-Gall-Stone Remedy and Dr. Shreve's S and L Pills.—Dr. Shreve's Medicine Company, Newton, Iowa. Shipped May 11, 1940. Composition: the first product was a liquid consisting essentially of lime water and a white sediment and was flavored with sassafras; the pills contained plant material (including a laxative) and metallic mercury (equivalent to 0.68 grain of mercury with chalk per pill) and were coated with sugar and calcium carbonate. The "Anti-Gall-Stone Remedy" was misbranded because of false and misleading representations in the labeling and accompanying circular, that it would be efficacious as a gallstone remedy, would produce a chemical change in the gall and alter the secretions of the gallbladder, liver, kidneys and bladder, and place the system in a better condition. "Dr. Shreve's S and L Pills" were misbranded because of false and misleading label representations that they would be efficacious in treating catarrh of the stomach or bowels, dizziness, nausea, diarrhea or dysentery, would promote digestion and assimilation, restore tone to the system and be effective as a laxative for biliousness and sour stomach.—[*D. D. N. J., F. D. C. 493; September 1942.*]

Knox Gelatine.—Charles B. Knox Gelatine Company, Inc., Johnstown, N. Y. Shipped between March 20 and April 16, 1941. Misbranded because of the following false and misleading claims on package and in accompanying literature: "How Knox Gelatine works for you! . . . For endurance. . . . The Knox Gelatine diet is being adopted by men and women all over the country who report that it really works. Hundreds of people who have completed 28-day occupational group tests have reported that Knox Gelatine has reduced fatigue to a significant degree. This is not theory. It is based upon carefully collected reports of men and women whose work makes strenuous demands on mental and physical endurance. . . . How to take Knox Gelatine for more endurance—less fatigue. . . . The latest research development—and the most wide-spread—is the use of Knox Gelatine in building endurance and resistance to fatigue." Also misbranded in violation of the provisions of the law applicable to foods as reported in F. N. J. No. 2548.—[*D. D. N. J., F. D. C. 497; September 1942.*]

No-Wheez Cough Syrup.—No-Wheez Corporation, St. Charles, Mo. Shipped between March 1 and May 24, 1940. Composition: essentially small amounts of pine tar, menthol, an emodin-bearing drug, chloroform, sugar and water. Misbranded because falsely represented in labeling as effective for treating bronchitis, whooping cough, sore throat and similar conditions and preventing wheezing in these disorders.—[*D. D. N. J., F. D. C. 489; September 1942.*]

Parisian Style Saje.—Giroux Manufacturing Company, Buffalo. Shipped March 29, 1940. Composition: essentially water, alcohol, glycerin and small amounts of resorcinol, volatile oils and capsicum. Misbranded because of false and misleading representation that the product was effective "to aid normal hair growth" and "for helping the natural growth of the hair." Also misbranded under provisions of the law applicable to cosmetics as reported in C. N. J. No. 66.—[*D. D. N. J., F. D. C. 508; September 1942.*]

Robinson's for Rheumatism, Arthritis, Neuritis and Lumbago.—Albert J. Robinson, Allentown, Pa. Shipped May 29, 1940. Composition: essentially potassium iodide (44.8 grams per hundred cubic centimeters) and alcohol (5 per cent). Misbranded because of false and misleading label representations, "For rheumatism, arthritis, neuritis, lumbago. . . . A foe to pain," and statements in accompanying circular representing that the product would be effective in treating these conditions, would heal and restore to normalcy helpless victims of such disorders; would bring freedom from pain and distress and effect perfect health regardless of whether the disorder was of recent origin or had developed to a serious stage, and would relieve suffering and disability.—[*D. D. N. J., F. D. C. 491; September 1942.*]

Tongue River Apiaries Honey.—Tongue River Apiaries (E. C. Reed & Son), Ranchester, Wyo. Shipped Oct. 1, 1940. Misbranded because the claims that the product was "helpful for impaired digestion, diabetes, etc." and that "a teaspoonful in warm water induces sleep and stimulates the heart" were false and misleading since the use of this honey could not be depended on to fulfil such promises. Further misbranded because of false and misleading statements regarding its alleged efficacy in maintaining health, treating heart weakness and heart failure and reviving heart action and its alleged value in cases of pneumonia and general physical repair; also as to its alleged effectiveness in producing energy and a healthy complexion, its purported usefulness as a cosmetic because of its claimed nourishing, bleaching, astringent and antiseptic effect on the skin. Also misbranded under provisions of the law applicable to foods, as reported in F. N. J. 2813.—[*D. D. N. J., F. D. C. 499; September 1942.*]

Vitalex Perdiz.—Manuel Perdiz, trading as Vitalex Laboratories, Buffalo. Shipped May 16, 1940. Composition: glycerophosphates of sodium and calcium, small proportions of iron phosphate, zinc phosphide and nux vomica, with indications of brewers' yeast and extract of cod liver oil, all in tablet form and coated with calcium carbonate and pink coloring. Biologic examination showed that it contained approximately 5 international units of vitamin B_1 per tablet. Misbranded because label statements, "Recommended for tiredness, loss of weight, irritability and nervousness, lack of appetite, lack of energy, and pale complexion when due to nutritional anemia and secondary anemia" and "It is recommended for fatigue, loss of weight, irritability and nervousness, lack of appetite, lack of energy, and pallor of the face and anemia caused by nutritional deficiency," were false and misleading, since the product would not be efficacious for such purposes. Further misbranded in that the name "Vitalex" and the claim, "This exceptional tonic is made of fine ingredients of recognized medicinal value combined with vitamins B," and "Active ingredients . . . vitamin . . . B . . . Dose 4 tablets a day," were false and misleading since they represented and suggested that the preparation contained a therapeutic amount of vitamin B_1, whereas it did not, and because the labeling failed to reveal the fact, material in the light of such representations, that the recommended total daily dosage, 4 tablets, would supply less than one-thirtieth of the average therapeutic dose of vitamin B_1. Also misbranded because the statement, "It does not contain any injurious . . . drugs," was false and misleading since the product did contain nux vomica and zinc phosphate, drugs which might be injurious.—[*D. D. N. J., F. D. C. 492; September 1942.*]

Wiel Garlic Tablets.—Wiel Laboratories, Inc., Brooklyn. Shipped March 2, 1940. Composition: a small amount of garlic flavored with peppermint and coated with sugar, calcium carbonate and a starchy material. Misbranded because labeling falsely represented that the product would build better health, stimulate digestion and reduce high blood pressure; that garlic causes the relaxation and expansion of the tiny blood vessels and small arteries, which have the direct and immediate effect of lowering blood pressure; that it would act by stimulating peristaltic movement of the bowels, and would aid in dispelling excessive flatulent gas and its disagreeable symptoms of nervous fatigue, coated tongue, and sleeplessness; and that it would relieve that peculiar dizziness and headache which usually accompany high blood pressure, and would help to overcome jumpy nerves due to ordinary constipation, whereas it would not be efficacious for such purposes.—[*D. D. N. J., F. D. C. 498; September 1942.*]

Correspondence

INTRAVASCULAR AGGLUTINATIONS IN AVIAN MALARIA

To the Editor:—In the January 23 issue of THE JOURNAL, under Current Comment, you reviewed an article by Dr. Arthur R. Lack on Intravascular Agglutinations in Avian Malaria. In your review you credit to the University of Chicago the original and fundamental observations on circulatory changes in simian malaria made by Dr. Knisely and his co-workers. While your misunderstanding is a normal inference from Dr. Lack's paper, these observations were made, in fact, by Dr. Knisely and his co-workers at the University of Tennessee during a two year period when Dr. Knisely was on leave of absence from the University of Chicago.

T. P. NASH JR., PH.D., Memphis., Tenn.
Dean, University of Tennessee School
of Biological Sciences.

To the Editor:—In the January 23 issue of THE JOURNAL you review an article by Dr. Arthur Lack on the intravascular agglutination of blood in avian malaria. The original observations on the intravascular agglutinations and consequent sludging of the blood were made in Macacus rhesus monkeys infected with Plasmodium knowlesi malaria. These observations were made in the late summer and fall of 1940 at the University of Tennessee Medical School by Drs. Warren Stratman-Thomas, Theodore S. Eliot and myself. A preliminary note on this work was published in the *Anatomical Record* (**79**:90 [March, supp. 2] 1941). These studies have been carried on for the past two years at the University of Tennessee through the cooperation of the University of Tennessee, the Tennessee Valley Authority and the University of Chicago. These three institutions pooled facilities, equipment and manpower for the work. In addition to those mentioned, Mr. Edward H. Bloch, Mr. Robert Michler, Miss Lois Levy, Miss Louise Warner and, toward the end of the work, Dr. Arthur Lack also worked on one or more of the problems involved.

The studies were carried on to learn progressive pathology of Plasmodium knowlesi malaria in monkeys, to learn the mechanisms by means of which the sludging of the blood causes symptoms and damage to the body, and to learn the details of the steps whereby the monkey destroys malaria parasites, how the parasite destroying mechanisms operate, how and why they fail, and to learn the effects of antimalarial drugs on these processes. Motion pictures were taken through the microscope of a number of the processes involved. Results of these studies are now being prepared for publication.

Dr. Lack was trained in this type of study by the members of our group in order that he might proceed with such studies in other forms of malaria and in other diseases. No harm has been done because his preliminary paper on the sludging of blood in avian malaria has appeared before the publication of the more extensive reports of studies on monkey malaria.

At the end of the editorial comment it is stated, in reference to the intravascular agglutination of the blood in malaria, that "the phenomenon presumably occurs in men." A few human patients with malaria have been studied. Every one had the intravascular agglutination. The intravascular agglutination has been seen in human beings with each of the three common species of human malaria. It has also been seen in acute alcoholism and in a variety of other human diseases. A preliminary note on this was published in the *Anatomical Record* (**82**:426 [No. 3] 1942).

MELVIN H. KNISELY, PH.D., Chicago.
Assistant Professor of Anatomy, University of Chicago.

Medical Examinations and Licensure

COMING EXAMINATIONS AND MEETINGS

BOARDS OF MEDICAL EXAMINERS
BOARDS OF EXAMINERS IN THE BASIC SCIENCES

Examinations of boards of medical examiners and boards of examiners in the basic sciences were published in THE JOURNAL, March 6, page 784.

EXAMINING BOARDS IN SPECIALTIES

AMERICAN BOARD OF ANESTHESIOLOGY: *Oral. Part II.* Chicago, June 6-7. Final date for filing application is 90 days prior to date of examination. Sec., Dr. P. M. Wood, 745 Fifth Ave., New York.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY: *Oral. Part II.* Pittsburgh, May 19-25. Sec., Dr. Paul Titus, 1015 Highland Bldg., Pittsburgh.

AMERICAN BOARD OF PATHOLOGY: Chicago, June 2-3. Final date for filing application is April 15. Sec., Dr. F. W. Hartman, Henry Ford Hospital, Detroit.

AMERICAN BOARD OF PEDIATRICS: *Written.* Locally, Oct. 8. *Oral.* New York, Nov. 20-21. Final date for filing application is Aug. 1. Starting July 1, 1943, Group I will be abolished. Sec., Dr. C. A. Aldrich, 707 Fullerton Ave., Chicago.

AMERICAN BOARD OF SURGERY: *Written. Part I.* March 25. Sec., Dr. J. Stewart Rodman, 225 S. Fifteenth St., Philadelphia.

Virginia June Report

The Virginia State Board of Medical Examiners reports the written examination for medical licensure held at Richmond in June 1942. The examination covered 8 subjects and included 80 questions. An average of 75 per cent was required to pass. One hundred and thirty-nine candidates were examined, 138 of whom passed and 1 failed. The following schools were represented:

School	PASSED	Year Grad.	Number Passed
George Washington University School of Medicine		(1942, 3)	3
Howard University College of Medicine		(1941) *	1
Rush Medical College		(1941)	1
University of Chicago, The School of Medicine		(1937)	1
Johns Hopkins University School of Medicine		(1942)	1
Washington University School of Medicine		(1942)	1
University of Nebraska College of Medicine		(1937)	1
University of Rochester School of Med. and Dentistry		(1939)	1
Hahnemann Medical College and Hospital of Philadelphia		(1942)	1
University of Pennsylvania School of Medicine		(1942)	1
Medical College of Virginia		(1941), (1942, 57)	58
University of Virginia Department of Medicine		(1942, 59)	59
Friedrich-Wilhelms-Universität Medizinische Fakultät, Berlin		(1932), (1936)	2
Medizinische Fakultät der Universität, Wien		(1935) (1938)	2
Regia Università degli Studi di Roma. Facoltà di Medicina e Chirurgia		(1936)	1
Universität Bern Medizinische Fakultät		(1936), (1938)	2
Universität Zürich Medizinische Fakultät		(1918)	1
Second Leningrad Medical Institute, Leningrad		(1926)	1

School	FAILED	Year Grad.	Number Failed
Schlesische-Friedrich-Wilhelms-Universität Medizinische Fakultät, Breslau		(1925)	1

Thirty-two physicians were licensed by endorsement of credentials from January 16 through July 14, 1942. The following schools were represented:

School	LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
George Washington University School of Medicine		(1935)	Maryland
University of Georgia Medical Department		(1929)	Georgia
Indiana University School of Medicine		(1937)	Indiana
College of Physicians and Surgeons of Baltimore		(1911)	Penna.
Johns Hopkins University School of Medicine		(1923)	New York, (1939) Maryland
Tufts College Medical School		(1936)	N. B. M. Ex.
St. Louis University School of Medicine		(1926)	Missouri
University of Nebraska College of Medicine		(1937), (1940)	Nebraska
Columbia University College of Physicians and Surgeons		(1905)	New York
Cornell University Medical College		(1935)	Minnesota
New York University College of Medicine		(1938)	N. B. M. Ex.
Syracuse University College of Medicine		(1937)	New York
University and Bellevue Hospital Medical College		(1904)	U. S. Army, (1931) New York
Duke University School of Medicine		(1936)	N. B. M. Ex.
Ohio State University College of Medicine		(1932)	Ohio
University of Cincinnati College of Medicine		(1916)	Ohio
Western Reserve University School of Medicine		(1931)	Ohio
Temple University School of Medicine		(1939)	Penna.
University of Pennsylvania School of Medicine		(1926)	N. Carolina, (1928) Pennsylvania, (1930) N. B. M. Ex.
Woman's Medical College of Pennsylvania		(1921)	Connecticut
Mcharry Medical College		(1940), (1941, 2)	Tennessee
University of Tennessee College of Medicine		(1931)	Tennessee
Medical College of Virginia		(1936), (1941)	N. Carolina
Queen's University Faculty of Medicine		(1897)	New York

* License has not been issued.

California July Report

The California Board of Medical Examiners reports the written examination for medical licensure held at Los Angeles, July 28-30, 1942. The examination covered 9 subjects and included 90 questions. One hundred and eleven candidates were examined, 105 of whom passed and 6 failed. The following schools were represented:

School	PASSED	Year Grad.	Number Passed
College of Medical Evangelists		(1941), (1942, 23)	24
Stanford University School of Medicine		(1941), (1942, 10)	11
University of California Medical School		(1942, 15)	15
University of Southern Calif. School of Medicine		(1942, 27)	27
Loyola University School of Medicine		(1941), (1942)	2
University of Illinois College of Medicine		(1942)	1
Boston University School of Medicine		(1924)	1
University of Minnesota Medical School		(1941), (1942)	2
St. Louis University School of Medicine		(1940), (1941, 2)	3
Washington University School of Medicine		(1940), (1941)	2
Creighton University School of Medicine		(1940), (1941)	2
University of Nebraska College of Medicine		(1940)	1
University of Cincinnati College of Medicine		(1941)	1
University of Oregon Medical School		(1941)	1
University of Pennsylvania School of Medicine		(1941)	1
University of Alberta Faculty of Medicine		(1937)	1
University of Toronto Faculty of Medicine		(1938)	1
Friedrich-Wilhelms-Universität Medizinische Fakultät, Berlin		(1928)	1
Julius-Maximilians-Universität Medizinische Fakultät, Würzburg		(1920)	1
Medizinische Fakultät der Universität, Wien		(1922, 2), (1928), (1929), (1932), (1935), (1937)	7

School	FAILED	Year Grad.	Number Failed
College of Medical Evangelists		(1942)	1
Hahnemann Medical College and Hosp. of Philadelphia		(1941)	1
Medizinische Fakultät der Universität, Wien		(1925)	1
Pennsylvania Medical School (Medical Department of St. John's University), Shanghai		(1929)	1
Deutsche Universität Medizinische Fakultät, Prag		(1923)	1
Julius-Maximilians-Universität Medizinische Fakultät, Würzburg		(1927)	1

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Governmental Hospitals: Validity of Rule Forbidding Performance of Major Surgery Without Presence of a Staff Member.—The Public Hospital of the city of Sterling, Ill., is, as its name indicates, owned and operated by the city of Sterling. Rules adopted by its board of directors make its facilities available to physicians who are staff members or who are associate staff members provided only that a "major operation" may not be performed unless either the operating physician is a staff member or there is in attendance, prepared for assistance in the operation, one or more members of the staff in addition to a proper anesthetist. The plaintiff, Selden, an associate staff member, sought to enjoin the city and the hospital board from enforcing the rule limiting the right of associate staff members to perform surgery in the hospital. Apparently he based his right to relief on a section of the state statutes under the authority of which the hospital was established and operated by the city, which provides, in part, as follows:

> All physicians who are recognized as legal practitioners by the Department of Registration and Education [the state agency issuing all licenses to practice any form of the healing art] shall have equal privileges in treating patients in such a hospital. Ill. Rev. Stat. 1941, C. 24, §44-1.

The trial court dismissed the bill of complaint for want of equity, and the plaintiff appealed to the appellate court of Illinois, second district.

Another rule of the hospital provided that associate staff members might become staff members on invitation after being recommended by the executive committee of the staff. Selden contended that this rule did not set up a standard capable of ready determination so as to enable a physician to know when he was eligible for staff membership. The apparent contention was that because there was no adequate standard for staff membership the other rule limiting the use of the hospital facilities for the performance of surgical operations was invalid. There is no merit to this contention, said the court. There is a specific hospital rule providing for admission to membership on the associate staff by application and probation and to membership on the staff on invitation after being recommended by the executive committee. The recommendation of the executive committee is based on the observation of its several members of the applicant's qualifications as to his work and his ethics, and if they are good he is invited to become a member of the staff. What other provision would be necessary to constitute any more definite standards is not suggested. Furthermore, the rules adopted by the board of directors are those of standard hospitals. The rules governing admission to membership on the staff apply to all physicians alike and tend to maintain a high degree of skill and integrity in the membership. It is obvious that rules must be adopted to protect patients in major operations from unethical or unskilled practitioners, even though they are licensed physicians. The rule in controversy is fundamentally a provision for the public safety and the public welfare. It is in no sense for the personal benefit of the hospital or the board of directors except in maintaining the standard of excellence and proficiency contemplated by the statute and required by the welfare of the public. It insures the attendance and, if required, the assistance of a practitioner of experience and ability in case the operating physician should meet with a condition to which he is not equal, so that nothing may be left undone for the benefit of the patient. The section of the statute purporting to accord equal privileges in hospitals operated by cities to all physicians recognized as legal practitioners by the department of registration and education was never intended to prohibit the board of directors of a public hospital from adopting rules that will inure to the benefit of hospital patients. The manifest object of the statute referred to was to prevent discrimination, of which there is no evidence in this case. The decree of the circuit court dismissing the complaint was accordingly affirmed.

On a petition for rehearing, the plaintiff argued that there was nothing in the rules of the hospital which provides that when a physician has attained a certain high degree of skill, based on a given amount of experience, that he shall then be recommended by the executive committee for membership on the staff. That is true, said the court. It is not possible, however, to prescribe by rule a standard of skill dependent on experience. Skilfulness may be, but is not always, brought about by experience. A physician with only limited experience may be a very skilful surgeon, while one with many years of experience may be a bungler. The hospital rule here challenged is not, in our opinion, an unreasonable rule. It applies alike to all physicians and cannot, on the evidence found in this record, be said to discriminate against the plaintiff. The petition for a rehearing was accordingly denied.—*Selden v. City of Sterling, 45 N. E. (2d) 329 (Ill., 1942).*

Chiropractic Practice Acts: Validity of Law Abolishing Chiropractic Examining Board and Conferring Its Duties on Central Licensing Authority.—Rasmussen was convicted of violating the chiropractic practice act of Washington on an information charging that without being licensed by the director of licenses to practice chiropractic he induced the belief that he was lawfully engaged in that practice. He appealed to the Supreme Court of Washington.

Rasmussen contended that the information on which he was convicted did not charge an offense under the laws of the state. His argument ran somewhat as follows: There is now no valid law limiting the practice of chiropractic to persons licensed to do so by the director of licenses. When the chiropractic practice act was enacted in 1921 it contained a section, which still exists as a law, prohibiting the practice of chiropractic and certain other related acts without complying with provisions of the act. In addition, the 1919 enactment contained provisions creating a board of chiropractic examiners with power to examine and license applicants for licenses to practice chiropractic. In 1921 a legislative act (Laws 1921, chapter 7) abolished a large number of administrative boards and agencies, among them the board of medical examiners and the board of chiropractic examiners, and vested the rights and duties of the boards and agencies abolished in a few stated agencies. By that law the powers and duties of the chiropractic board, among others, was vested in the director of licenses. The law complained of did not set out in full any of the acts affected by it but merely

referred by name to the agencies abolished. This 1921 law, the defendant argued, was invalid because it was an attempt to amend the preexisting chiropractic practice act without complying with that section of the Washington constitution which provides that "No act shall ever be revised or amended by mere reference to its title, but the act revised or the section amended shall be set forth at full length." (Constitution, article II, section 37.) The defendant argued that since the law attempting to give the director of licenses power to license applicants for licenses to practice chiropractic and, in effect, attempting to make it unlawful to practice without a license from the director was invalid, there was no provision by which a person could be licensed to practice chiropractic, and hence he committed no offense in practicing, or inducing a belief that he was engaged in practice, without a license. A statute, said the Supreme Court in answer to this contention, must be sustained and enforced unless it is in clear and irreconcilable conflict with some express provision of the constitution. On the other hand, if the constitutional provision and the legislative enactment are so clearly in conflict that they cannot both stand, the statutory provision must, of course, fail. Provisions similar to the provision in the Washington constitution prohibiting revision or amendment by reference to title alone and requiring the act or section revised or amended to be set out in full are found in most state constitutions, and at an early date the courts adopted the rule that a provision of this nature must receive a reasonable interpretation. In *People ex rel. Drake* v. *Mahaney*, 13 Mich. 481, it was said:

> This constitutional provision must receive a reasonable construction, with a view to give it effect. The mischief designed to be remedied was the enactment of amendatory statutes in terms so blind that legislators themselves were sometimes deceived in regard to their effect, and the public, from the difficulty in making the necessary examination and comparison, failed to bcome apprised of the changes made in the laws. An amendatory act which purported only to insert certain words, or to substitute one phrase for another in an act or section which was only referred to but not republished, was well calculated to mislead the careless as to its effect, and was, perhaps, sometimes drawn in that form for that express purpose. . . . But an act complete in itself is not within the mischief designed to be remedied by this provision, and cannot be held to be prohibited by it without violating its plain intent.

Following this rule of reasonable interpretation, continued the court, the courts have designated certain statutes which refer to other statutes as "reference statutes" and not within the restriction contemplated by the constitutional provision. Reference statutes are of frequent use to avoid encumbering the statute books by unnecessary repetition, and, in the absence of constitutional restrictions, they have frequently been recognized as an approved method of legislation. *State ex rel. Hunt* v. *Tausick*, 64 Wash. 69, 116 P. 651.

The 1921 act, continued the court, which among other things abolished the board of chiropractic examiners and conferred its duties on the director of licenses, in no way changed or amended the law pertaining to the qualifications or requirements for chiropractors in this state. It merely abolished the state board of chiropractic examiners and transferred its duties to the director of licenses without in any way changing those duties. Legislatures have frequently passed laws abolishing offices or departments and conferring their duties and functions on newly created offices or departments. These statutes have generally been held to be constitutional under state constitutions similar to that of Washington. For instance, *In re Hadley*, 336 Pa. 100, 6 A. (2d) 874, the court said:

> We have several times held that an act terminating given powers and duties in one agency and transferring them to another agency is not required to republish at length all the acts originally conferring such powers and duties.

The court accordingly held constitutional the 1921 act which abolished the board of chiropractic examiners and conferred its powers on the director of licenses.

The defendant contended next that the trial court committed error in admitting into evidence a telephone directory of the community in which the chiropractor lived in which he was listed as a chiropractor and in refusing to strike the testimony of the manager of the telephone company, who identified the directory, testified that the listing in the directory of the defendant as a chiropractor cost the defendant an additional charge of 50 cents a month, and that such a listing was made only at the request of the person listed and admitted that he personally had made no contract with the defendant for such listing. An investigator of the state department of licenses testified that he had called at the defendant's home on a stated date and that there was a sign on the porch bearing the legend "X-Ray and H.I.O. Chiropractor," that on the front door was printed the defendant's name and office hours and that the defendant in conversation with him answered "yes" to the question as to whether or not he was practicing chiropractic and showed the witness that he had been admitted in one or two other states. The defendant contended that it was necessary for the state to prove that the insertions in the telephone directory were placed there at his request. It does not appear, said the court, that there was any direct evidence available regarding the insertion of the defendant's name in the telephone directory. However, circumstantial evidence was admissible to prove that fact and the testimony of the manager of the telephone company relative to the contents of the telephone directory and the directory itself were admissible in evidence when considered in connection with the testimony of the investigator from the department of licenses. The conclusion of the court in this regard found support in *State* v. *Bennett*, 6 Wash. (2d) 208, 107 P. (2d) 344. In that case the defendant was convicted of the same offense as the defendant here. The only evidence introduced was that of two inspectors of the state department of licenses to the effect that the defendant's office had on the window the words "Palmer Graduate, X-Ray, Chiropractic"; that on entering the office they found cards with the defendant's name and telephone number thereon, and that the defendant admitted that he was practicing. A telephone directory listing the defendant as a chiropractor was also received. There the court said:

> We are of the view that, upon the evidence, the jury not only could have believed that appellant was engaged in the practice of chiropractic without having a license so to do, but also was clearly warranted in finding, as it did, that appellant had "induced a belief" on the part of the general public that he was engaged in that profession.
>
> It is true, as appellant points out, that the inspectors did not see the appellant actually performing any manual operation upon a patient, and that no witness testified that he, or she, had been induced to believe that appellant was engaged in the practice of chiropractic. However, it was not essential that the charge of inducing belief be established by direct evidence. A criminal case, like any other, may be proved by circumstantial evidence, and reasonable inferences have the same probative effect as direct testimony.
>
> It is a well-settled rule of evidence that any inference which may be reasonably drawn from a fact testified to by a witness is as legitimate evidence as the fact itself.

The conviction of the chiropractor was accordingly affirmed. —*State v. Rasmussen, 128 P. (2d) 318 (Wash., 1942).*

Society Proceedings

COMING MEETINGS

Alabama, Medical Association of the State of, Birmingham, April 20-22. Dr. Douglas L. Cannon, 519 Dexter Ave., Montgomery, Secretary.

American Gastro-Enterological Association, Atlantic City, N. J., May 3-4. Dr. J. Arnold Bargen, 102 Second Ave. S. W., Rochester, Minn., Secretary.

American Neurological Association, New York, May 6-7. Dr. Henry A. Riley, 117 East 72d St., New York, Secretary.

American Society for Clinical Investigation, Atlantic City, N. J., May 3. Dr. Wesley W. Spink, University Hospital, Minneapolis, Secretary.

Arizona State Medical Association, Tucson, April 30-May 1. Dr. Frank J. Milloy, 112 North Central Avenue, Phoenix, Secretary.

Arkansas Medical Society, Little Rock, April 19-20. Dr. W. R. Brocksher, 602 Garrison Ave., Fort Smith, Secretary.

California Medical Association, Los Angeles, May 2-3. Dr. George H. Kress, 450 Sutter St., San Francisco, Secretary.

Conference of State and Provincial Health Authorities of North America, Washington, D. C., March 22-25. Dr. A. J. Chesley, 469 State Office Bldg., St Paul, Secretary.

Florida Medical Association, Jacksonville, April 15-16. Dr. Shaler Richardson, 111 West Adams St., Jacksonville, Secretary.

Iowa State Medical Society, Des Moines, April 29-30. Dr. Robert L. Parker, 3510 Sixth Avenue, Des Moines, Secretary.

Maryland, Medical and Chirurgical Faculty of, Baltimore, April 27-28. Dr. W. Houston Toulson, 1211 Cathedral St., Baltimore, Secretary.

Missouri State Medical Association, St. Louis, April 18-20. Mr. Raymond McIntyre, 634 North Grand Blvd., St. Louis, Executive Secretary.

National Tuberculosis Association, St. Louis, May 5-6. Dr. Charles J. Hatfield, 7th and Lombard Sts., Philadelphia, Secretary.

New York, Medical Society of the State of, Buffalo, May 3-6. Dr. Peter Irving, 292 Madison Ave., New York, Secretary.

Ohio State Medical Association, Columbus, March 30-31. Mr. Charles S. Nelson, 79 East State St., Columbus, Executive Secretary.

Texas, State Medical Association of, Fort Worth, May 3-6. Dr. Holman Taylor, 1404 West El Paso St., Fort Worth, Secretary.

Current Medical Literature

AMERICAN

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Titles marked with an asterisk (*) are abstracted below.

American Heart Journal, St. Louis

24:719-886 (Dec.) 1942

*Hypertension and Cardiac Rupture: Clinical and Pathologic Study of Seventy-Two Cases, in Thirteen of Which Rupture of Interventricular Septum Occurred. H. A. Edmondson and H. J. Hoxie, Los Angeles. —p. 719.

Effects of Repeated Administration of Lanatoside C on Myocardium of Dog. H. Rosenblum, G. Biskind and H. E. Kruger, San Francisco. —p. 734.

*Syphilitic Coronary Stenosis with Myocardial Infarction. G. E. Burch and T. Winsor, New Orleans.—p. 740.

Congenital Aortic and Mitral Atresia: Report of Case and Review of Literature. R. Walker and G. H. Klinck Jr., Troy, N. Y.—p. 752.

Effect of Oxygen on Electrocardiograms of Cyanotic Patients. J. N. Edson, Brooklyn.—p. 763.

Use of Heparin for Complications Which Follow Sclerosing of Varicose Veins by Massive Injection. S. H. Sedwitz, Youngstown, Ohio.—p. 774.

Electrocardiogram After Standard Exercise as Functional Test of the Heart. A. M. Master, R. Friedman and S. Dack, New York.—p. 777.

Hypoplasia of Aorta Without Transposition with Electrocardiographic and Histopathologic Studies of Conduction System. M. Lev and S. T. Killian, Chicago.—p. 794.

Five Year Survival After Perforation of Interventricular Septum Caused by Coronary Occlusion: Histologic Study of Kidneys After Three Hundred and Fifty Injections of Mercurial Diuretics. F. C. Wood and Mary Miller Livezey, Philadelphia.—p. 807.

Effects of Posture on Velocity of Blood Flow from Arm to Tongue. M. Wilburne, Chicago.—p. 816.

*Use of Papaverine as Objective Measure of Circulation Time. S. R. Elek and S. D. Solarz, Chicago.—p. 821.

Hypertension and Cardiac Rupture.—Among 25,000 consecutive necropsies performed during seventeen years the hearts of 865 (3.4 per cent) had one or more unhealed infarcts. Edmondson and Hoxie state that among these 865 there were 72 with ruptured hearts; the ruptured hearts of only 19 (26.3 per cent) contained scars as compared to 58.4 per cent of those with unruptured hearts and unhealed infarcts. The 33 and 36 per cent incidence of rupture in the seventh and eighth decades closely paralleled the 33 and 28 per cent incidence of infarction in these decades. The difference shown in the eighth decade is not statistically significant. Of the 865 patients 601 were males and of the 72 with ruptured hearts only 40 were males. The seasonal incidence of rupture of the heart did not differ significantly from that of myocardial infarction, and the frequency of obesity was practically the same in these two groups. In the ruptured hearts the infarcts tended to be smaller, more completely necrotic and more heavily infiltrated with polymorphonuclear leukocytes. Of 100 consecutive patients whose nonfatal myocardial infarction was determined on convincing clinical and electrocardiographic evidence, 23 had a blood pressure of or above 140 systolic and 90 diastolic; the average was 125/78. Of 657 patients who had myocardial infarction that terminated fatally without rupture, 210 had a blood pressure of or above 140/90, the average being 128/81. In 39 of 62 patients who died of cardiac rupture the blood pressure was 140/90 and the average 148/90. The average calculated time between infarction and rupture was seven and four-tenths days; 98 per cent occurred on or before the sixteenth day after infarction and 78 per cent between the third and twelfth days. Only 4 per cent of 368 patients whose hearts weighed 400 or more Gm. and who had a blood pressure of less than 140/90 after infarction had cardiac rupture as compared to 25 per cent of the 28 whose hearts weighed less than 400 Gm. and whose blood pressure was higher than 140/90.

Syphilitic Coronary Stenosis with Myocardial Infarction.—Three patients with myocardial infarction secondary to syphilitic coronary thrombosis were found by Burch and Winsor in their review of the protocols of 6,225 consecutive necropsies at the Charity Hospital during the last five years. These 3 patients comprised 1.6 per cent of all cases of myocardial infarction. Nine similar cases are reported in the literature. The average age of the patients with syphilitic coronary stenosis was 45 years. Both arteries were usually involved. The white to Negro ratio was about 1:6 and the female to male ratio about 1:3.5. The blood Wassermann reaction was positive in 96.3 per cent. The average weight of the hearts with coronary stenosis alone was 413 Gm., whereas the average weight of the hearts of patients who had had coronary stenosis and aortic regurgitation, hypertension or both was 680 Gm.

Papaverine and Circulation Time.—Elek and Solarz noticed a sudden, almost uniform deepening of respiration shortly after injection of papaverine hydrochloride. They adopted the following technic: The patient lies supine in a quiet room for at least five minutes before the test is performed. He is informed as to what will probably occur and is asked not to cough, sigh or take a voluntarily deep breath. The antecubital vein is used for injection and the arm is so placed on a pillow that the level of the site of injection will be about 10 cm. above the posterior axillary line. About ten seconds are allowed to elapse between insertion of the needle and injection of the drug through a 2 cc. Luer syringe and a 20 gage needle. The papaverine hydrochloride, 40 mg., is injected within one second and the circulation time is clocked. The end point is signaled by a sudden, deep inspiration, with employment of the abdominal muscles, which interrupts the usual phase of respiration and is at times accompanied by a sigh or gentle exclamation. This is commonly followed by flushing of the face or cheeks, a feeling of facial warmth, a sensation of throbbing in the temples, mild dizziness and, less frequently, acceleration of the heart. The tachypnea lasts fifteen to sixty seconds with an average of about thirty seconds. The range of values for the circulation time with papaverine for 41 men and 9 women without subjective or objective signs of heart failure varied from fifteen and four-tenths to twenty-seven seconds; the average was twenty and eight-tenths seconds. Duplicate measurements were done of 24 at intervals of two to five minutes; the range of differences between any two measurements was zero to three seconds, and the average was one and two-tenths seconds. The data on 6 patients with congestive heart failure and 4 with hyperthyroidism show that in those with heart failure the papaverine circulation time, as the sodium dehydrocholate time, was definitely prolonged. The papaverine circulation time in hyperthyroidism was shortened, but the deviation from normal was not as definite as its prolongation in heart failure. Indirect evidence suggests that papaverine hydrochloride may measure the arm-respiratory center circulation time.

Archives of Pathology, Chicago

35:1-206 (Jan.) 1943

So-Called Mixed Tumors of Salivary Glands. W. H. Sheldon, Boston. —p. 1.

Gastrointestinal Involvement in Lymphatic Leukemia. F. Pearson, J. Stasney and P. Pizzolato, New Orleans.—p. 21.

Elastic Tissue: III. Relations Between Structure of Aging Aorta and Properties of Isolated Aortic Elastic Tissue. G. M. Hass, New York. —p. 29.

Adrenal Rests in Kidney. N. Mitchell and A. Angrist, Jamaica, N. Y. —p. 46.

Developmental Basis of Regenerative and Pathologic Growth in Uterus. P. Gruenwald, Chicago.—p. 53.

*Latent Primary Carcinoma. A. P. Gewanter, N. Mitchell and A. Angrist, Jamaica, N. Y.—p. 66.

Histologic Analogy of Bronchial Adenoma to Late Prenatal and Early Postnatal Structures. W. H. Harris Jr., New Orleans.—p. 85.

Acromegaly with Long Standing Tumor Infiltration of Cavernous Sinuses. C. Spark and S. B. Biller, New York.—p. 93.

Effects of Radiation on Normal Tissues. S. Warren, Boston.—p. 121.

Semen and Seminal Stains: Review of Methods Used in Medicolegal Investigations. O. J. Pollak, Taunton, Mass.—p. 140.

Latent Primary Carcinoma.—Gewanter and his collaborators report 25 cases of latent primary cancer encountered among 2,514 necropsies (391 were of cancer) between November 1935 and January 1941 at the Queens General Hospital. It is suggested that the term "latency" be used only for cancer which

produces symptomatic precocious metastasis while it itself remains silent. Symptoms due to the primary involvement were present before death in only 3 of the patients. In 8 instances the primary site was not established at necropsy and in 2 there were double primary tumors. The latent primary cancers were found at nine separate sites: lung, stomach, pancreas, prostate, fundus, uteri, testis, male breast and ovary. In 2 the site could not be determined. The site of the precocious metastasis was the central nervous system, long bones, peritoneum, pleura, lung, liver, lymph nodes, intestine, ovary and adrenal. Metastasis in the central nervous system occasioned manifestation of obstructive hydrocephalus, hemiplegia, the cerebellar syndrome, increased intracranial pressure due to an expanding lesion and paraplegia associated with extradural spinal involvement. Bone involvement was evidenced by pain or pathologic fracture. Involvement of the peritoneum and pleura usually caused effusion, with pain or intestinal obstruction. The latency of any cancer is determined by its biologic growth processes, by its site and by chance. The location of metastasis will of itself condition the early or late appearance of clinical symptoms. The proximity of a tumor to large vascular structures will be determinative of catastrophic symptoms as compared with a similar lesion in the periphery of a relatively avascular organ. Some inherent biologic properties of individual neoplasms may play a determining role in their latency.

Cancer Research, Baltimore

3:1-72 (Jan.) 1943

Effects of Water Soluble Carcinogen on Early Frog Development. Janet Bloch Briggs and R. W. Briggs, Philadelphia.—p. 1.
Inheritance of Susceptibility to Tumors Induced in Mice: I. Tumors Induced by Methylcholanthrene in Five Inbred Strains of Mice. W. J. Burdette, Baltimore, and L. C. Strong, New Haven, Conn.—p. 13.
Genetic Analysis of Induction of Tumors by Methylcholanthrene: IV. Probable Remote Induction of Various Types of Gastric Lesions. L. C. Strong, New Haven, Conn.; V. J. Collins, Albany, N. Y., and E. A. Durand, New Haven, Conn.—p. 21.
Experimental Gastric Tumors in Mice. V. J. Collins, Albany, N. Y., W. U. Gardner and L. C. Strong, New Haven, Conn.—p. 29.
Skin Carcinogenesis by Single Application of 20-Methylcholanthrene. W. Cramer and R. E. Stowell, St. Louis.—p. 36.
Carcinogenesis After Multiple Irritation. J. Lauridsen and H. E. Eggers, Omaha.—p. 43.
Reactions of Hybrid and Parabiontic Pseudohybrid Mice to Inoculations of Tumor C198. A. M. Cloudman, Bar Harbor, Maine.—p. 47.
Transplantable Squamous Cell Carcinoma in Rabbit. H. S. N. Greene, New Haven, Conn., and W. H. Brown, Princeton, N. J.—p. 53.
Comparative Effects of Estrogen, Testosterone and Progesterone on Benign Mammary Tumors of Rat. J. Heiman, New York.—p. 65.

Connecticut State Medical Journal, Hartford

7:1-78 (Jan.) 1943

Toxic Manifestations of Sulfonamide Therapy. P. H. Long, Baltimore.—p. 6.
Id. J. G. Irving, Hartford.—p. 10.
Early Management of Poliomyelitis and the Kenny Treatment. F. R. Ober, Boston.—p. 16.
Presanatorium Tuberculosis. P. S. Phelps and R. C. Edson, Hartford.—p. 19.
Emotional Components of Illness. J. Romano, Cincinnati.—p. 22.
Modern Treatment of Acute Hematogenous Osteomyelitis of Long Bones. A. O. Wilensky, New York.—p. 26.
Injuries of Genitourinary System. C. L. Deming, New Haven.—p. 31.

Florida Medical Association Journal, Jacksonville

29:251-290 (Dec.) 1942

Perforating Peptic Ulcer: Experiences at Duval County Hospital. M. Mangels Jr. and E. Jelks, Jacksonville.—p. 261.
Role of Physical Medicine in National Defense and During Active Warfare. K. Phillips and A. M. Phillips, Miami.—p. 266.
Tuberculosis of Breast: Report of Case. L. F. Carlton, H. R. Mills and C. F. Chunn, Tampa.—p. 271.
Indications for Surgical Treatment of Duodenal Ulcer. G. W. Morse, Pensacola.—p. 274.

Georgia Medical Association Journal, Atlanta

31:437-478 (Dec.) 1942

*A New Disease Entity (?). C. D. Bowdoin, Atlanta.—p. 437.

A New Disease Entity?—Bowdoin reports the occurrence during August 1940 at Wrens, Ga., of an outbreak of 35 cases of an unusual disease. The first patient became ill on August 1 and by August 21 the 35 patients had recovered or were recovering. The county health department made a study of 17. The patients were males between 6 and 42 years of age and gave a history of sudden onset with severe predominantly frontal headache, postorbital pain, chilliness and sweating. About two thirds of the patients complained of nausea and many vomited. About two thirds complained of lumbar pain and pain in the legs, and one third complained of some pain in the joints. Epigastric pain was complained of by about one half of the patients and diarrhea by 2, but constipation was the rule. The most striking feature was a fine red rash chiefly over the anterior aspects of the legs; it was more predominant over the tibia. The rash was finer but not unlike that seen in measles. It remained only twenty-four to forty-eight hours and usually appeared around the fifth day. The acutely ill patients presented a rather dull facies with slight to moderate injection of the conjunctivas and some slight injection of the throat. The temperature ranged from 100.6 to 104.5 F. and was accompanied by a pulse between 55 and 90. The only common etiologic factor was a small, sluggish, little stream which pooled into an old swimming hole. Every patient had found relief from the summer heat in this dirty swimming hole. One technician was assigned to handle stool cultures and she became ill in about ten days. The author is convinced that she had a laboratory (secondary) infection of the same disease. Agglutination tests done on the convalescent serums of 22 patients, including the technician, were negative. Since bathing in the particular swimming hole was the only common factor, water transmission must be considered. It would appear that the disease is an entity probably due to an unknown causative agent, but the infection in the laboratory technician suggests its presence in the stool.

Journal of Immunology, Baltimore

45:237-320 (Dec.) 1942

Hypothermic and Adrenohemorrhagic Effects of Bacterial Vaccines. L. Olitzki, S. Avinery and P. K. Koch, Jerusalem, Palestine.—p. 237.
Typhoid Vaccine Studies: VI. Production of Cross Immunity Between Members of Typhoid Paratyphoid Group of Micro-Organisms. D. Longfellow and G. F. Luippold, Washington, D. C.—p. 249.
Cutaneous Reactions to Animal Plasma Proteins in Man. G. M. Savage, H. L. Taylor and A. Keys, Minneapolis.—p. 261.
Method for Titration of Influenza Hemagglutinins and Influenza Antibodies with Aid of Photoelectric Densitometer. G. K. Hirst and E. G. Pickels, New York.—p. 273.
In Vivo Titrations of Influenza Virus and of Neutralizing Antibodies in Chick Embryos. G. K. Hirst, New York.—p. 285.
Direct Isolation of Human Influenza Virus in Chick Embryos. G. K. Hirst, New York.—p. 293.
Effect of Ninhydrin on Rabbit Serum Protein and Antibodies. A. H. Eggerth, Brooklyn.—p. 303.

Journal of Pediatrics, St. Louis

21:569-704 (Nov.) 1942

*Studies on Air Borne Infection in Hospital Ward: I. Effect of Ultraviolet Light on Cross Infection in Infants' Ward. Harriet E. Sommer and J. Stokes Jr., Philadelphia.—p. 569.
*Id.: II. Effects of Ultraviolet Irradiation and Propylene Glycol Vaporization on Prevention of Experimental Air Borne Infection of Mice by Droplet Nuclei. W. Henle, Harriet E. Sommer and J. Stokes Jr., Philadelphia.—p. 577.
*Diagnosis and Management of Severe Infections in Infants and Children: Review of Experience Since Introduction of Sulfonamide Therapy: II. Hemolytic Streptococcus Meningitis. A. F. Hartmann, Dorothy Wolff, Frances M. Love and Barbara S. Kendall, St. Louis.—p. 591.
Studies with Hemophilus Pertussis: X. Comparative Antigenic Analysis of Bacillus Parapertussis and Hemophilus Pertussis, Phase I, with Consideration of Clinical Significance. E. W. Flosdorf, A. Bondi, Harriet Felton and A. C. McGuinness, Philadelphia.—p. 625.
Series of Substitutes for Milk in Treatment of Allergies. L. Z. Wolpe and P. C. Silverstone, Los Angeles.—p. 635.
Blood Level of Vitamin B_1 in Healthy Children and Its Relation to Urinary Thiamine. R. A. Benson, C. M. Witzberger, L. B. Slobody and Liese Lewis, New York.—p. 659.
Observations on Schick Test Reactions and Serum Antitoxin Titers After Injections of Toxoid. B. Benjamin, G. Fleming, Montreal, Canada, and Mary A. Ross, Toronto, Canada.—p. 665.
Fetal Toxoplasmic Encephalitis—Type of Congenital Cerebral Disease. P. M. Levin and H. Moore, Dallas, Texas.—p. 673.
Immediate Fatality Following Use of Mercupurin. J. Vaughn, Santa Monica, Calif.—p. 680.

Irradiation and Air Borne Infection.—Sommer and Stokes found that irradiation in an experimental ward had some beneficial effect on the air of a nonirradiated control ward because of an open corridor between the two wards. The irradiation reduced the number of air borne organisms in both the irradiated and the nonirradiated ward. It also may have

influenced the kinds of air borne organisms and the number of subclinical and clinical hospital infections. There was a suggestive reduction of pneumococcic cross infections contracted in the irradiated and in the control ward.

Irradiation, Propylene Glycol Evaporation and Air Borne Infection.—The scanty data obtained in a clinical study prompted Henle, Sommer and Stokes to use mice in determining the effect of ultraviolet irradiation and propylene glycol vaporization on air artificially contaminated with droplet nuclei derived from cultures of hemolytic streptococci of Lancefield's group C or the virus of influenza A and on cross infection in the animals. Groups of animals were placed in some cubicles while the cultures were atomized in one of the cubicles of a ward. Both organisms spread rapidly throughout the air of the ward. With heavy concentrations of more than 3,000 of air borne streptococci per cubic foot of air most control mice died, while propylene glycol vapor protected them completely and ultraviolet irradiation failed to prevent death only among the animals in the cubicle containing the atomizer. With low concentrations of the streptococcus (200 to 500 organisms per cubic foot) all mice survived, and cultures from the lungs on the eighth or tenth day failed to reveal the streptococcus. However, a carrier state was induced in the control animals but not in those protected by ultraviolet light barriers. Ultraviolet irradiation and propylene glycol vapor were similarly effective in preventing air borne infection with the virus of influenza A. All control mice died, propylene glycol vapor protected the animals completely as did ultraviolet irradiation with the exception of a few mice in the cubicle containing the atomizer. Droplet and possibly dust borne infection may require different means of control.

Severe Infections in Infants and Children.—Since the first case of meningitis was treated with sulfonamides in the St. Louis Children's Hospital, 100 patients have been admitted with signs and symptoms sufficiently suggestive of bacterial meningitis. Hartmann and his co-workers review the 12 among the group with acute hemolytic streptococcus meningitis. The infection almost invariably is a complication of acute or neglected infection in the upper part of the respiratory tract and usually in the temporal bone. In 3 fatal cases of the series and in 26 others the involvement of the meninges was usually the result of direct extension of the infection from the middle or inner ear, the mastoid or petrous portion of the temporal bone or from the pericarotid veins in the carotid sheath. In the fourth patient who died, postmortem examination revealed a generalized purulent leptomeningitis, an acute inflammatory process in the left mastoid antrum and bronchopneumonia of the right lower lobe. Complete recovery with little or no residuums in 8 of the 12 patients is attributed to both early and accurate diagnosis, the administration of adequate amounts of sulfonamide, adequate supportive treatment of all types and to surgical drainage of accessible suppuration within the temporal bone. No chemotherapy had been employed in 2 of 3 patients who died until they were admitted to the hospital in a moribund condition. In the third patient it is questionable whether the amount administered was adequate; spinal fluid concentrations never exceeded 15 mg. per hundred cubic centimeters.

Missouri State Medical Assn. Journal, St. Louis

40:1-28 (Jan.) 1943

Infiltrations of Transient Nature Easily Mistaken for Pulmonary Tuberculosis. E. E. Glenn, Springfield.—p. 1.
Prognosis in Pulmonary Tuberculosis. H. I. Spector, St. Louis.—p. 3.
Why Sanatorium or Hospital Treatment Is Necessary in Treatment of Pulmonary Tuberculosis. A. C. Henske, St. Louis.—p. 6.
Laboratory Aids in Diagnosis of Pulmonary Tuberculosis, Especially Blood Examination. H. F. Schwartz, Koch.—p. 8.
Value of Tuberculin Test. J. A. Stocker, Mount Vernon.—p. 10.

Nebraska State Medical Journal, Lincoln

28:1-32 (Jan.) 1943

Postoperative Neurologic Complications. H. W. Woltman, Rochester, Minn.—p. 4.
Endocrine Problems in the Male. W. O. Thompson, Chicago.—p. 9.
Fibrositis. A. F. Tyler, Omaha.—p. 13.
Trichobezoar. W. D. Lear and R. R. Brady, Ainsworth.—p. 15.

New England Journal of Medicine, Boston

227:975-1012 (Dec. 24) 1942

Treatment of Arthritic Contractures of Knee. J. G. Kuhns, Boston.—p. 975.
Important Clues in Cardiovascular Diagnosis. P. D. White, Boston.—p. 980.
*Use of Ether in Oil Intramuscularly in Treatment of Bronchial Asthma. A. L. Maietta, Winchester, Mass.—p. 985.
The Sulfonamides: Their Mode of Action and Pharmacology. C. A. Janeway, Boston.—p. 989.

Ether in Oil for Bronchial Asthma.—Maietta administered intramuscular injections of ether in oil to 11 patients with bronchial asthma. Much more clinical investigation is required for proper evaluation. Of the three types of asthma—acute bronchial asthma, chronic bronchial asthma and status asthmaticus—the first is the least important because, in an uncomplicated case, the symptoms generally respond to the usual medications. However, for the patient who responds favorably but not completely and in whom palliative medication must be continued for several days until relief is obtained an intramuscular injection of ether in oil, repeated in four to six or twelve hours if necessary, appears not only to aid the symptoms but also to render epinephrine and ephedrine more efficacious. Of 6 patients who had an attack of acute asthma from two to five days and who responded fairly but not satisfactorily to injections of epinephrine, ephedrine sulfate, aminophylline and phenobarbital, 4 received one intramuscular injection of ether in oil and 2 received two injections and within two hours their asthmatic symptoms were controlled. The patients became quieter, were able to breathe more easily and expectorated more freely. Of the 3 patients with chronic bronchial asthma, often for as long as thirty or forty years, the intramuscular administration of ether in oil rendered expectoration much easier, the patients became more comfortable and, as the mucus and cough diminish, they may become symptom free unless secondary changes (emphysema and bronchiectasis) or a fresh episode is encountered. The beneficial results may last for several months or longer. The dose is one or sometimes two injections a week and may be continued in conjunction with other approved treatment until the cough, wheezing and sputum are reduced to a minimum. Ether in oil intramuscularly is an adjuvant to other therapeutic agents. Of the 2 patients with status asthmaticus so treated, 1 received nine and 1 eleven injections and, although they had chronic asthma and had never been completely free of their symptoms, 1 has remained symptom free for more than four and 1 for more than six months.

Northwest Medicine, Seattle

41:401-432 (Dec.) 1942

*Silicosis: General Considerations and Survey in Coeur d'Alene Mining District of Idaho. P. M. Ellis, M. T. Smith, H. E. Bonebrake and L. B. Hunter, Wallace, Idaho.—p. 406.
Surgery of Colon. H. B. Stone, Baltimore.—p. 412.
Lower Half Headache: Symptoms and Treatment. M. Girling, Longview, Wash.—p. 418.
Actinomycosis of Lung: Minimal Infection. H. S. Atwood, Fort George Wright, Wash.—p. 419.

Silicosis.—Beginning in 1935, one of the mining companies of the Coeur d'Alene region in Idaho started routine physical examinations of new employees and also examined those already working in the mine. In 1936 and 1937 most of the larger companies joined in this policy. Approximately 10,000 examinations were made by the Coeur d'Alene staff. Ellis and his co-workers tabulate 7,542 of the examinations. According to the histories, 1,299 had not been exposed to silica dust and 6,243 had been exposed for one to forty-five years. Of these 6,243 workers, 31 per cent exposed for (an average) three and a half years had no silicosis on roentgen and clinical study, the roentgenograms of 32 per cent exposed for six and twenty-nine hundredths years showed excessive linear exaggerations (called presilicosis by many), 2.32 per cent exposed for more than eight and up to more than fifteen years had silicosis and tuberculosis, 0.24 per cent exposed for three years had tuberculosis without silicosis and the remaining 35 per cent exposed for eleven to nineteen and a half years had various grades of silicosis. The authors feel that disability from simple uncomplicated silicosis is not as severe as might be assumed from the roentgenograms alone. For determining disability, exercise tests such as used

in life insurance examinations and those now used in examining draftees for the Army are sufficient for the average person when a careful history, physical examination and adequate roentgenograms are had. Superimposed infection is the greatest factor in increasing dyspnea, cough and disability to work. Tuberculosis is the most important; it tends to increase the susceptibility to silicosis. Diseases incident to advancing age must be considered. In many persons the treatment of silicosis is entirely that of prevention, and this is an engineering problem. Above all, the contact of the silicotic patient with tuberculosis must be avoided. A man who has worked long enough under present conditions for silicosis to develop is an experienced and valuable employee, especially in these times, and he may be able to produce much more, if there is no superimposed infection, than an individual in perfect health with no experience. If this man's exposure to fine quartz particles is low enough to be safe, he, in the light of present knowledge, may work productively with little further danger.

Radiology, Syracuse, N. Y.

39:647-778 (Dec.) 1942

*Lung Abscess Secondary to Aseptic Pulmonary Infarction. E. M. Chester and G. R. Krause.—p. 647.
Traumatic Lipohemarthrosis of Knee. C. B. Peirce and D. C. Eglesham, Montreal, Canada.—p. 655.
Influence of Medium on Radiation Injury of Sperm. T. C. Evans, J. C. Slaughter, Iowa City; E. P. Little, Exeter, N. H., and G. Failla, New York.—p. 663.
Roentgenologic Irradiation in Acute Peritonitis and Its Effect on Cells of Normal Peritoneal Fluid in Guinea Pigs. F. J. Rigos, Rochester, Minn.—p. 681.
*Experimental Studies of Mechanism of Action of X-Ray Therapy on Infection. J. D. Bisgard, H. B. Hunt, O. A. Neely and P. Scott, Omaha.—p. 691.
Comparative Roentgenologic Study of Gallbladder by Intensified Cholecystography. M. Feldman, Baltimore.—p. 697.
Air Myelography for Demonstration of Cervical Spinal Cord. R. M. Lowman and A. Finkelstein, Philadelphia.—p. 700.
Roentgen Diagnosis of Lacerated Spleen. L. Solis-Cohen and S. Levine, Philadelphia.—p. 707.
Roentgen Treatment of Inoperable Ulcerating Carcinoma of Breast. W. C. MacCarty Jr. and E. T. Leddy, Rochester, Minn.—p. 711.
Medical Staff Conference on Parathyroid Gland Disease. F. S. Smyth, M. H. Soley, H. Lisser, L. Goldman, E. R. Miller and S. Lindsay, San Francisco.—p. 715.

Pulmonary Abscess and Aseptic Pulmonary Infarction.—Chester and Krause saw 11 cases of pulmonary abscess secondary to aseptic hemorrhagic pulmonary infarction. In some of the cases the symptoms and signs of pulmonary abscess so dominated the clinical picture that the underlying infarct was not suspected until it was disclosed at necropsy. Some or all of the usual signs and symptoms of pulmonary infarction (hemoptysis, chest pain, dyspnea, pleural friction rub and signs of consolidation) were present in every case in which a pulmonary abscess eventually developed. The distinguishing clinical feature was the occurrence of a foul, purulent sputum some days or weeks after the onset of the infarct. It was usually accompanied by a secondary rise in temperature and an elevated leukocyte count. Patients with heart disease had an increase in the severity of the condition. The observations of previous authors as to the roentgen appearance of the infarct shadow have been confirmed. Roentgenologically the infarcts varied widely in appearance, depending on size, position, age and the presence of secondary infection, pleural effusion or passive hyperemia. The typical triangular appearance of the infarct seen at postmortem study was not demonstrated on the roentgenogram unless the central ray passed through the infarct at right angles to its long axis. (If oblique and lateral views are made, this triangular shape will be seen more often.) In all cases the infarct became the site of the abscess. If the patient was first seen after the abscess had formed the secondary infection completely masked the underlying infarct. It is therefore important to consider the possibility of an infarct as the underlying cause of all pulmonary abscesses, especially if cardiac failure is present. When the patient was seen early in the course of his disease and serial roentgenograms were made, the diagnosis of pulmonary abscess secondary to an infarct was relatively easy. Blood stream infection was excluded from the study, so that the infarct of the patients can be presumed to have been aseptic at the time of onset.

Mechanism of Action of X-Ray Therapy on Infection.—Bisgard and his colleagues state that their experimental studies indicate that in rabbits roentgen irradiation is followed by a significant and consistent reduction in the mortality from toxemia of bacterial origin and that this effect is produced by the liberation of an antitoxic factor. Inadvertently, studies designed to investigate certain aspects of peritonitis became a study of toxemia of bacterial origin and of the effect on it of roentgen rays. If a substance which neutralizes or minimizes the effect of toxins can be termed an antitoxic substance, then roentgen rays produced an antitoxic substance in the rabbits used in the experiments. Since this antitoxic factor was present in the blood stream, the protection from irradiation cannot be attributed to local factors inherent in the treated tissues, such as hyperemia, increased or decreased permeability of the capillaries or lymphocytic infiltration, as suggested in the literature. The following theory is offered to explain the results: Roentgen rays are destructive agents. In response to this insult the cells, or some group of cells, liberate a protective or antitoxic factor. This protective reaction to injury may be not unlike that evoked by various chemical agents, such as snake venom and even bacterial toxins. Time is required for the protective mechanism to develop. In the authors' experiments it was present twenty-four hours after irradiation. Protection apparently developed too slowly to be of benefit to the rabbits irradiated after inoculation. It reached its peak of effectiveness in forty-eight hours and by the seventh day it was apparently entirely dissipated. Harvey, Meleney and Rennie reviewed the reported investigative efforts to establish peritoneal immunity and found that chemical irritants, such as aleuronat and starch mixtures, are essentially as effective as vaccines, bacteriogens and serums in producing nonspecific immunity, and that the more irritative the agent the greater the immunity. In this category the present authors believe that roentgen rays may be included as a physical agent of irritation and destruction. Pordes has suggested that the source of the antitoxic agents of irradiation is the antibodies, ferments and other protective substances which are liberated from the leukocytes that are destroyed by the rays.

Tennessee State Medical Assn. Journal, Nashville

35:455-500 (Dec.) 1942

Clinical Results with Use of Buffered Acid Jelly, *p*H 4.5 and Other Jellies of Varying *p*H, in Gynecologic Infections: Study of 129 Cases. R. B. Chrisman Jr., Camp Forrest.—p. 455.
Headaches. A. Weinstein, Nashville.—p. 458.
Some Significant Achievements in Public Health. W. S. Leathers, Nashville.—p. 463.
Treatment of Facial Fractures. W. M. Adams, Memphis.—p. 469.

Western J. Surg., Obst. & Gynecology, Portland, Ore.

50:597-650 (Dec.) 1942

*Presacral Neurectomy: Gynecologic and Obstetric Follow-Up. R. N. Rutherford, Seattle.—p. 597.
Motor Dysfunction of Right Half of Colon of Congenital Origin in Children: Clinical and Diagnostic Study. W. H. Buecrmann, Portland, Ore.—p. 607.
Hernias Through the Pelvic Floor. C. W. Barrett, Chicago.—p. 615.
Use of Gravity and Wangensteen Tip in Miller-Abbott Intubation. D. Metheny and L. R. Hutchins, Seattle.—p. 618.
Vagitus Uterinus. J. L. Kitzmiller and W. B. Mitchell, Detroit.—p. 620.
Renal Aspects of Late Toxemias of Pregnancy. A. C. Corcoran, Indianapolis.—p. 622.
Educating Women to Seek Prenatal Care. Hazel Corbin, New York.—p. 631.

Presacral Neurectomy.—Dysmenorrhea may be secondary to obvious pelvic disease. Painful menstruation is an exaggeration of the physiologic vasoconstriction of pain bearing nerves. Rutherford performed a presacral neurectomy on 23 patients in 1939; on 20 for primary dysmenorrhea and on 3 for endometriosis with its secondary or acquired dysmenorrhea. A two year follow-up has been completed for the 23 patients and 8 of them have undergone pregnancy. Labor was normal in 7, while in 1, because of pelvic disproportion, cesarean section was necessary. Corrective procedures were combined with presacral neurectomy whenever indicated. In only 1 of the 23 was the result not worth while; pain was relieved 100 per cent in 12, 75 per cent in 7 and 50 per cent in 4.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Radiology, London

15:341-370 (Dec.) 1942

Nontraumatic Occipitoatlantoaxial Dislocation: Contribution to Radiology of Atlas. O. Englander.—p. 341.
Technic in Mass Miniature Radiography. P. Kerley.—p. 346.
Tolerance Dosage in Radiotherapy with 200 Kilovolt X-Rays. F. Ellis. —p. 348.
Passing of the Cambridge Diploma. A. E. Barclay.—p. 351.
Combination of Radiation Fields in Deep X-Ray Therapy. C. W. Wilson. —p. 355.
Very High Voltage X-Ray Therapy (Supervoltage). I. G. Williams. —p. 360.
Calcification and Ossification of Spinal Tumors. E. D. Gray.—p. 365.

British Medical Journal, London

2:627-654 (Nov. 28) 1942

Outbreak of Smallpox in Glasgow, 1942. A. Macgregor and R. J. Peters. —p. 627.
War Surgery of Eye: Removal of Magnetic Intraocular Foreign Bodies by Posterior Route. H. B. Stallard.—p. 629.
Long Survival After Total Gastrectomy: Brief Review, with Report of Two Cases. C. A. Joll and D. I. Adler.—p. 632.
Preparation of Hands for Operation. W. A. Cochrane.—p. 635.

2:655-684 (Dec. 5) 1942

*Infected Wounds Involving Bone Treated with Sulfapyridine and Sulfathiazole. J. F. Heggie, A. W. Kendall and R. M. Heggie.—p. 655.
Venous Pressure During Venesection and Blood Transfusion. J. F. Loutit, M. D. Mollison and E. D. van der Walt.—p. 658.
Water Borne and Milk Borne Outbreak of Paratyphoid B Infection in Worcestershire: Potential Dangers of Ram Water Supplies. S. C. Parry.—p. 661.
Fatal Phosphorus Poisoning from Explosive Bullet. A. J. Blaxland. —p. 664.

Sulfonamides for Infected Bone Injuries.—The Heggies and Kendall used sulfapyridine and sulfathiazole, in addition to the standard antiseptic and surgical measures, in the treatment of compound fractures caused by bomb splinters and other high velocity particles and chiefly infected with Staphylococcus pyogenes. From their observations they conclude that chemotherapy is a necessary supplement to the surgical treatment of these wounds. Sulfathiazole is more efficacious than sulfapyridine for these staphylococcic infections when the necessary blood concentration is obtained by oral or intramuscular administration. In established staphylococcic infection in bone, combined oral and local administration of sulfathiazole at the time of surgical intervention, especially during radical surgical treatment, is efficacious. Sulfathiazole applied locally, alone and unsupported by simultaneous oral administration, is of value in slight or moderate staphylococcic infection even after the bulk of the infected focus has been removed surgically.

2:685-714 (Dec. 12) 1942

Pain Pathways in Migraine. G. F. Rowbotham.—p. 685.
*Syndrome of Hemorrhagic Suprarenal Infarction. Doris V. Keele and K. D. Keele.—p. 687.
Herring as Source of Vitamins A and D: Collaborative Investigation. A. L. Bacharach, E. M. Cruickshank, K. M. Henry, S. K. Kon, J. A. Lovern, T. Moore and R. A. Morton.—p. 691.
Sick Absence Among Munition Workers. A. Massey and R. C. M. Pearson.—p. 694.
Sudden Death in Unsuspected Rheumatic Carditis. J. T. Quinlan. —p. 695.

Syndrome of Hemorrhagic Adrenal Infarction.—The Keeles believe that the diagnosis of primary hemorrhagic infarction of the adrenals rests on the character of the pain, the severity of vomiting and the absence of "shock." In the patient (the senior author) whose history is reported, the syndrome was produced by thrombosis of the adrenal vein with resulting hemorrhagic infarction of the adrenal gland. Other causes of hemorrhage into the adrenal are birth trauma in the newborn, in meningococcic and other acute infections and as a part of a general hemorrhagic state. The pain, which at first was a "stitch" and then a cramp, was gradual in onset and was accompanied by a feeling of coldness. It was localized (by tenderness) to a point to the right of the umbilicus. It was at first mild but steadily increased until it was of great severity. The pain was persistent and intractable to medication and was aggravated by any movement, such as walking. The persistent and repeated vomiting continued until operation. The operation had no effect on the pain. There was hyperalgesia of the skin in the tender region. Vomiting was the symptom which obscured diagnosis. It started about three hours from the onset of pain; it was copious without retching, almost projectile in character and repeated. There appeared to be little nausea between, when fluids were well taken. Dehydration was not pronounced. Its character and persistence suggested intestinal obstruction. The absence of "shock" was contrary to expectations in a patient with adrenal disease. This clinical picture is confirmed when an analysis is made of the 10 available clinical records of similar cases. Exploratory laparotomy was performed in 4 of the 10 cases and in none was the diagnosis made. This, in the author's opinion, raises the most important feature of all: If at an exploratory laparotomy the usual sites of acute abdominal conditions are normal, the adrenals should be examined for infarction. The cause of the death of the senior author was diffuse bilateral pulmonary hemorrhage; in the other patients it presumably was acute adrenal insufficiency. In cases of Friderichsen-Waterhouse syndrome pulmonary congestion is commonly mentioned, and in view of the present case it would seem that adrenal insufficiency does produce some change in pulmonary circulation.

Lancet, London

2:661-688 (Dec. 5) 1942

*Vitamin C and Repair of Injured Tissues. G. H. Bourne.—p. 661.
*Infected Burns in Naval Personnel. R. M. Heggie and J. F. Heggie. —p. 664.
Postvaccinal Encephalitis. T. Anderson and P. McKenzie.—p. 667.
Encephalitis with Skin Eruption After Vaccination: Transfusion of Immune Blood. R. V. Facey.—p. 669.

Vitamin C and Repair of Injured Tissue.—Since it is most important to secure rapid repair of war injuries, Bourne presents the available information on the value of vitamin C in accelerating the repair of injured tissue. In 1923 Ishido found considerable delay in the healing of experimental wounds in scorbutic guinea pigs. Work by others has shown that not only is the growth and migration of fibroblasts affected in healing wounds in vitamin C deficiency but phagocytosis also is inhibited. In the first stages of the repair of bone, cellular proliferation and production of fibers similar to collagen fibers are essential preliminary processes to calcification, and therefore a deficiency of vitamin C would delay healing in bone. The changes in scorbutic animals have proved that the healing of fractures would be delayed in scurvy. In general, absorption of the fracture hematoma is delayed, fibroblast activity is reduced and the production of collagen is deficient. Bourne has shown that optimal formation of bony trabeculae in injured femurs of guinea pigs is brought about by the daily administration of 2 mg. of vitamin C (probably equivalent to about 40 mg. for a human being) and that anything less than 1 mg. seriously retards the formation. Healing of a fractured bone calls for more vitamin C than the animal (guinea pigs and rabbits) is able to manufacture. If calcium ascorbate is injected into rats it accelerates the healing of holes previously bored in their femurs. Calcium gluconate was ineffective. To some extent this can probably be explained by the greater ionization of the ascorbate, which is presumably more effective in absorbing calcium from the subcutaneous tissues, and possibly by its greater protein combining power. The double bond structure of ascorbic acid is retained in calcium ascorbate and therefore this substance is an antiscorbutic as well as a source of calcium. Deficiency of vitamin C inhibits the deposition of calcium in bones and in guinea pigs receiving daily injections of 2 mg. of sodium alizarin sulfonate. Repair tissue stained strongly; in those receiving 0.5 mg. it stained less intensely and not at all in those receiving no vitamin C. The work of Gould and Shwachman suggests that vitamin C may play some part in the deposition of calcium by means of its effect on the phosphatase system of bone. Therefore vitamin C in the regeneration of bone may promote the activity of the fibroblast cells and possibly their differentiation into osteoblasts, it may favor the attachment of the polypeptide chains to one another and it may aid in the precipitation of bone salts by its promotion of phosphatase activity. The clinical trial of calcium ascorbate for the treatment of fractures has not yet been tried.

Infected Burns in Naval Personnel.—Of 30 patients severely burned with cordite and other high temperature flash burns, the Heggies state that 20 were treated with tannic acid spray and for 10 this therapy proved inadequate so dressings of cod liver oil were used. On admission 8 of the 20 were not infected, 4 were moderately infected and 8 were grossly infected, and, of the 10, 5 were moderately and 5 were grossly infected. With infection the marginal tan loosens. Usually infection occurred from the marginal skin as a result of inadequate antiseptic measures. Staphylococcus pyogenes was the predominant organism. In a study of the fauces, skin and clothes of healthy personnel afloat the organism was found respectively in 20, 25 and 14 per cent, and hemolytic streptococci only in 5 per cent of the fauces. Staph. pyogenes was recovered from the burn in all cases of infection. Other organisms recovered were the nonhemolytic streptococcus, Proteus vulgaris and Bacillus subtilis. Chief among the causes for infection were inadequate initial tanning and antiseptic measures—in short inadequate first aid and next immediate treatment. Antiseptics should never replace surgical cleanliness, but some antiseptic must necessarily be applied to avert infection. Cleansing with spirit soap followed by sterile saline solution and then ether is insufficient and adds to shock by increasing loss of body heat. One of the nonirritant synthetic detergents, in aqueous solution, should replace the relatively inefficient commonly used soaps. Infection was not the only factor that delayed healing. Other factors were deeply affected tissue, too frequent changing of dressings, initial or continued protein loss, slow recovery from anemia and the like. When infection cleared up the healing time was similar in the oil and the tan treated patients.

Schweizerische medizinische Wochenschrift, Basel

72:854-884 (Aug. 8) 1942

Physical Therapy of Accidental and War Wounds. M. Dubois.—p. 857.
*Chronic Pulmonary Infiltration with Eosinophilia. M. Kartagener.—p. 862.
Value of Early Provision of Training Prostheses in Leg Amputations; Description of Simple Wooden Stumps. H. Debrunner and C. Petri.—p. 864.
Intestinal Hemorrhage in Obstruction of Vena Cava Inferior. W. Berblinger.—p. 869.
Intracutaneous Test on Arm in Dentogenic Focal Injection. F. Prader.—p. 870.
Autobiographic Notes of One Operated on for Cataract. C. Ladame.—p. 872.
*Social (Economic) Indications for Sterilization of Marriage Partners. G. and R. Reimann-Hunziker.—p. 876.

Chronic Pulmonary Infiltration with Eosinophilia.—Kartagener points out that transient pulmonary infiltrations with eosinophils, which Löffler differentiated in 1931, have been verified by many investigators. The etiology has not been entirely clarified, probably because there is no uniform cause. The roentgenologic and physical signs and the eosinophilia are transient. The maximum eosinophilia usually appears a few days after the maximum roentgenologic changes. Earlier assumption that edema or atelectasis is the underlying anatomic change have been superseded by von Meyenburg's investigations. This author maintains that these infiltrations represent eosinophilic pneumonia. Transient infiltrations with eosinophils should be designated as eosinophilic infiltration of type Löffler. This type represents an acute process, but the degree of severity of the symptoms is no index of its acuity. The form described by Löhr and by Léon-Kindberg differs from Löffler's type in that the acute symptoms are severe, almost like those of a septic process, and that the process is extremely protracted; it persists for months. Kartagener describes a case which he regards as representative of a third type of eosinophilic infiltration. This form is characterized by chronicity and mildness of the symptoms. The patient, a woman aged 40, had never been seriously ill except for severe gonorrhea. She had never had asthma or bronchitis. She complained of indefinite back and chest pains. Examination demonstrated small foci of infiltration in the right upper lung field, which remained unchanged during fifteen months of observation. The increase in eosinophils persisted with great fluctuations. There were no signs of serious illness aside from intermittent subfebrile temperatures, nocturnal sweats and headaches. She was able to continue her work. Nothing definite can be said about the pathogenesis and etiology of her disorder. Constitutional eosinophilia can be excluded, but the repeated demonstration of eosinophils in the sputum indicates a relationship between the blood eosinophilia and the pulmonary changes, particularly since asthma can be ruled out. Hodgkin's disease and echinococcus can be ruled out. A tuberculous infiltration cannot be definitely excluded, but in view of the considerable eosinophilia it must be regarded as unusual. Whether the three types of eosinophilic infiltrations represent three variants of the same disease or whether they are distinct entities is difficult to decide. The author suggests that allergic factors might be involved.

Sterilization of Marriage Partners.—The Reimann-Hunzikers discuss social or economic indications for sterilization of marriage partners. They stress that the two partners have the same rights and that the question arises which of the two should be sterilized. Since vasectomy in men is a less serious operation than tubal sterilization in women, sterilization of the male is preferable. The authors cite the following as reasons why, as a rule, it is the woman who is being sterilized: 1. Historical development of the sterilization of women. 2. Obscure presentation of the indication for the sterilization; the social indication is obscured by a fictitious medical indication. 3. The woman, who is directly responsible for the raising of the children, is usually more willing to undergo sterilization than the man. The authors made inquiries in the larger hospitals of Switzerland in order to determine the relative numbers of men and of women who were sterilized for economic reasons. The inquiry reveals a predominance of women. The authors inquired as to the late results with 12 men who had been subjected to a vasectomy at the Basel clinic. It was possible to examine 8 of these from one to six years after the operation. The men had no disturbances and were satisfied with the results. Roulet and Andina made microscopic studies of testes obtained by castration five years after vasectomy; they observed no secondary degenerative changes. There is a possibility of a successful restorative intervention on the vas deferens.

Medicina, Madrid

10:253-338 (Oct.) 1942. **Partial Index**

*Sudden Death in Starvation. E. de Salamanca.—p. 253.
Lathyrism. R. Martinez Almeida.—p. 264.
Treatment of Fractures of Surgical Neck of Humerus. R. Arandes Adán and J. Cosp Caminal.—p. 285.
Duodenal Stenosis Following Lithiasis of Gallbladder and Pancreas. M. Ruiz.—p. 315.
Erythrocytic Sedimentation in Rheumatic Diseases. J. M. Massons.—p. 319.

Sudden Death in Starvation.—De Salamanca observed a number of sudden deaths in starved persons who had eaten their first food after hospitalization with unusual voracity. Tachycardia and increase in the pulmonary artery tonus may be brought about by excitation of the stomach. The simultaneous stimulation of the vagus and the sympathetic may cause ventricular fibrillation, particularly in the presence of an already impaired ventricle. It is probable that overfilling of the stomach produces a vagosympathetic stimulation in an already defective heart and that this reflex mechanism causes ventricular fibrillation and sudden death. Another possible mechanism is that of an impaired liver not capable of absorbing certain products of digestion and with resulting hemoclastic shock. These causes or a combination of several of them may be responsible for the sudden death in the starved.

Semana Médica, Buenos Aires

49:1005-1080 (Oct. 29) 1942. **Partial Index**

Diseases of Spinal Column: Erroneous Concept of Chronic Rheumatism of Spine: Spondylopathies. F. Z. Guerrini.—p. 1019.
Endocrine Disorders as Cause of Repeated Abortion: Clinical Case. E. Cantilo and C. Fernández-Speroni.—p. 1033.
*Local Sulfanilamide in Trachoma. H. F. Morate.—p. 1059.

Local Sulfanilamide in Trachoma.—Morate resorted to various sulfonamide compounds in the treatment of 18 cases of trachoma in children and adults. The drug was well tolerated by the conjunctiva and the cornea. The subjective symptoms rapidly disappeared regardless of the clinical form and duration of the disease. The therapy is simple, economic, painless, clean and hygienic. It resulted in a cure in 33 per cent of the cases and in amelioration of symptoms and in prevention of complications in the rest.

Book Notices

Blood Substitutes and Blood Transfusion. Edited by Stuart Mudd, M.A., M.D. Professor of Bacteriology, University of Pennsylvania School of Medicine, Philadelphia, and William Thalhimer, M.D., Director, Human Serum Division, Public Health Research Institute of the City of New York, Inc. Fabrikoid. Price, $5. Pp. 407, with 94 illustrations. Springfield, Illinois & Baltimore: Charles C Thomas, 1942.

This symposium-monograph contains contributions from seventy collaborating investigators under the editorship of Drs. Mudd and Thalhimer. The discussions concern thoroughly established facts as well as many aspects of blood substitutes and blood transfusion still controversial in nature. The first four chapters discuss the etiology and mechanism of traumatic shock; indeed, the word "shock" might have been included in the title. The contributions are uniformly of high quality even when discussing subjects on the borderline of present knowledge. The arrangement is satisfactory: a section on methods of preservation of plasma and serum by desiccation and by freezing follows the section on shock. The four other divisions are on hemoglobin, serum albumin and casein digest as blood substitutes; blood substitutes in the world emergency; whole blood: storage, transportation, administration, including isoagglutinins and blood group specific substances; and therapeutic experiences with serum and plasma. The symposium is briefly summarized by Dr. Mudd in a chapter entitled "Recapitulation and Outlook." Concentrated research is rapidly adding to knowledge in the field of blood substitutes and blood transfusion, so that some of the material in this book is already dated. This symposium-monograph is a valuable and timely contribution in a vital field.

Microbiology of Meats. By L. B. Jensen, A.B., M.Sc., Ph.D., Chief Bacteriologist, Swift & Company, Chicago. Cloth. Price, $4. Pp. 252. Champaign, Ill.: Garrard Press, 1942.

The author has done extensive research in the field of bacteriology of meats, and this book contains the results of much of his own research. The introduction and history in chapter 1 covers in a scholarly manner much interesting material from ancient times. The chapter on the gaseous fermentation in meat products by the genus Bacillus shows that these bacteria are capable of producing gas in meat containing sodium nitrate. Thiamine is a necessary, although incomplete, factor when meat is excluded. The chapter on green discolorations in meats gives a discussion of the action of oxidizing and sulfide producing bacteria in blood pigments. The chapter on ham souring shows how anaerobic bacteria entering the stick wound during slaughter cause spoilage of hams during curing. The chapter on bacon emphasizes the use of tongs in handling sliced bacon in order to reduce mold contamination. There is an adequate discussion on the control of micro-organisms in the packing plant.

The author has done well in discussing the controversial subject of the use of sodium nitrate in meat. Many will not agree with him that sodium nitrate produces aerobic conditions so that anaerobes such as Clostridium botulinum will not grow. McLeod's theory that anaerobes are killed by hydrogen peroxide, which is produced when these organisms are exposed to air, is not so generally accepted. Recent work indicates that oxygen acts indirectly by destroying the reducing potential. If the reducing tension is maintained, anaerobes are able to use measurable quantities of oxygen in their metabolism.

The discussion of the role of microbial oxidase and lipase in the rancidity of fats is ably discussed. Certain minor discrepancies were noted. The author says that bacteria growing on coconut oil agar with nile blue sulfate as an indicator produce blue colonies when lipase is present. Knaysi, who has investigated the inhibition of growth produced by this dye, contends that the lipase diffusing into the medium coats the fat globules with soap which is colored blue by the dye. The unaltered fat globules remain red. The author believes that the dual acting bacteria producing both lipase and oxidase are responsible for the rapid lypolysis and rancidity in fats. Many readers will not agree completely, remembering that oxidative rancidity by bacteria is mainly a surface effect. Deep in the fat, where intense reducing conditions prevail, destruction of antioxidants will accelerate fat spoilage after the fat is processed and exposed to oxygen.

As in all new books, errors of omission and commission occur. For example, the last chapter on bacterial food poisoning contains, on page 231, an outline for analysis of samples. Directions for growing staphylococci on semisolid mediums in 20 per cent carbon dioxide are not given, although this point is mentioned on succeeding pages in a discussion of the relative merits of various methods of animal testing for enterotoxin. On page 234 is a statement attributed to Dack and Kelley "that bread in sandwiches had been found to be toxic but the filler of the sandwich was nonpoisonous." The filler was toxic. A number of mistakes were also noted in the bibliography.

Text-Book of Pharmacognosy. By Heber W. Youngken, A.M., Phm.M., Ph.D., Professor of Pharmacognosy and Biology in the Massachusetts College of Pharmacy, Boston. Fifth edition. Cloth. Price, $7.50. Pp. 1,038, with 511 illustrations. Philadelphia: Blakiston Company, 1943.

The author defines pharmacognosy as the science which treats of the history, production, commerce, collection, selection, identification, valuation, preservation and use of drugs and other economic materials of plant and animal origin. The aim of the work is to supply a systematic textbook for students of pharmacognosy, either from the morphologic or from the taxonomic point of view. Pharmacognosy is so wide in scope that few students can master it because of its generality as well as its specificity. The study of pharmacognosy is now confined almost entirely to schools of pharmacy, and even here the time given to it is becoming restricted more and more. Medical students are but little exposed to it. Textbooks of pharmacology have found it expedient to restrict pharmacognosy to the mere essentials of such drugs as digitalis, ergot and quinine, and many students cannot recognize any of these. Ever since Dioscorides compiled the Greek Herbal, the study of plant pharmacognosy has gradually decreased, especially during the last century. There is adequate reason for this decline. Medical students simply do not have the time to spend on it. The action of active ingredients and the thousands of organic preparations are more important in medicine than the study of pharmacognosy. Medical educators must confine their teaching to fundamental principles and their action. To them the action of the opium alkaloids is of much more importance than the structure of the poppy capsule. This book, however, is worth the attention of medical students and practitioners, at least as a reference work. For the student of pharmacognosy it is excellent, as indicated by the publication of the fifth edition. The book presents (1) morphologic considerations of drugs, (2) taxonomic consideration of drugs, (*a*) drugs of vegetable origin, (*b*) drugs of animal origin, (*c*) microanalytic methods. It is well arranged. The printing and illustrations are excellent, the text is clear and the statements are definite. For the student of pharmacognosy it can be recommended; for the library of the more general reader it is a worthy addition.

A Venture in Public Health Integration. The 1941 Health Education Conference of the New York Academy of Medicine. Cloth. Price, $1. Pp. 56. New York: Columbia University Press, 1942.

This book contains the proceedings of the 1941 Health Education Conference of the New York Academy of Medicine. Contributors to the symposium were Edward J. Stieglitz, M.D., Washington, D. C., who spoke on "The Role of Health Education in the Promotion of Optimal Health and in the Retardation of Degenerative Diseases"; Edward L. Bernays, New York, on "Barriers to Health Education," and Allen Freeman, M.D., Baltimore, on "Health Education by the Private Practitioner, the Voluntary Agency and the Department of Health." To the experienced person in health education this material brings nothing new, but these three addresses taken together will give an excellent brief survey and introduction to the field of health education for the novice. The only serious criticism of the views expressed by these authors is their adherence to the prevalent lament, namely that the doctor is not sufficiently interested in health education and that medical ethics must be reinterpreted to give the doctor greater freedom as a health educator. The fact is, of course, that the Judicial Council of the American Medical Association and the House of Delegates have long recognized health education and have enabled and encouraged the physician to participate in it without violation of any principle of medical ethics. Another point often overlooked when the doctor is admonished for his lack

of participation in health education is that the primary responsibility of doctors is the care of the sick, but that in discharging this, their fundamental, obligation doctors perform day in and day out an incalculable amount of health education which can never be measured and charted because it is so intimately interwoven with diagnosis, therapeutics and the intangible doctor-patient relationships which enable the physician unobtrusively to guide his patient toward the way in which he should walk. If this is not health education, what is it?

A Manual of Experimental Embryology. By Viktor Hamburger. Cloth. Price, $2.50. Pp. 213, with 45 illustrations. Chicago: University of Chicago Press, 1942.

Professor Hamburger's book is intended to be used as a laboratory guide in graduate or undergraduate courses in experimental embryology. It fulfils this function admirably by bringing together much information about operative procedures and the preparation of materials and of instruments which was previously not available in any single book. Clear step by step descriptions of all phases of operations on amphibian and chick embryos and on planarians (flat worms) are presented in such detail as to enable one not previously trained in this type of work to carry out successful experiments. There is a particular emphasis on simplicity of procedure and use of instruments which may be prepared in any laboratory. Thus, directions are given for the preparation of hair loops, glass needles, micropipets, microscalpels and microburners—instruments which suffice for the repetition of many classic operations. The more elaborate tools (iris knives, iridectomy scissors, watchmakers' forceps) are described and the places where they can be purchased are listed. There are excellent descriptive chapters on gastrulation in the amphibia and primitive streak formation in the chick, followed in each instance by a series of carefully thought out experiments. The illustrations are clear and numerous and serve to show instruments, operations and embryonic stages. Embryologists will find the normal series of stages of frog and salamander embryos particularly useful. Each chapter is followed by a short and well chosen bibliography. Methods of obtaining and caring for embryos of amphibian and chick are not overlooked. In summary, this book should serve as an excellent handbook for the use of those already working in this general field or of those who wish to begin transplantation experiments on the nonmammalian vertebrates.

The Hand: Its Disabilities and Diseases. By Condict W. Cutler Jr., M.D., F.A.C.S., Associate Surgeon, Roosevelt Hospital, New York. Cloth. Price, $7.50. Pp. 572, with 274 illustrations. Philadelphia & London: W. B. Saunders Company, 1942.

The author has placed considerable emphasis on the anatomy of the hand and its relationship to methods of sound treatment. In addition to an excellent chapter on anatomy, the subject is brought up throughout the entire book and is enhanced by photographs of anatomic specimens and clearcut line drawings. The dangers of delaying adequate treatment of apparently minor infections until evidences of toxemia arise and the complications which may arise from the use of local and nerve block anesthesia in treatment of infections are emphasized. In the treatment of specific infections mention is not made of the use of tetanus toxoid, which is of special interest because of its use in the armed forces. Neither is anything said about the experimental drugs which may be the answer in the treatment of mycotic infections. The author's treatment of burns may find disfavor with some who do not care for the use of tannic acid, but his results appear to be good. Attention is called to the avoidance of delay in skin grafting of burns until an avascular scarred base is laid down. Fractures, compound and simple, and dislocations, are concisely treated. In the majority of cases the most commonly accepted method of treatment is described and no attempt is made to introduce controversial material. The chapter on repair and reconstruction describes excellently the principles of skin grafting and nerve and tendon repair and could be read with profit by any one who may be called on to do such surgery on other parts of the body as well as on the hand. Congenital and acquired deformities, tumors and manifestations in the hand of constitutional diseases form the closing chapters. The relationship of the hand to the body as a whole is clearly defined and the necessity for systemic, as well as local, treatment is emphasized. The works of others have been freely drawn on and due credit is given throughout as well as in references at the end of each chapter. Coupled with the material from the author's own vast experience, the book becomes one which should take a well deserved place on any physician's shelf.

Diseases of the Gastro-Intestinal Tract. By Asher Winkelstein, M.D., B.S., Associate in Medicine and Physician in Charge of the Gastro-Intestinal Clinic, The Mount Sinai Hospital, New York. Cloth. Price, $2. Pp. 195. New York, Toronto & London: Oxford University Press, 1942.

Public Health and Preventive Medicine. By Morton C. Kahn, M.A., Ph.D., D.Sc., Associate Professor of Public Health and Preventive Medicine, Cornell University Medical College, New York. Volumes I and II. Cloth. Price, $4, per set. Pp. 267; 269-534. New York, Toronto & London: Oxford University Press, 1942.

Urology. By William H. Mencher, A.B., M.D., F.A.C.S., Associate Urologist, Harlem Hospital, New York. Cloth. Price, $2. Pp. 204. New York, Toronto & London: Oxford University Press, 1942.

Gynecologic Surgery. By Morris A. Goldberger, M.D., F.A.C.S., Associate in Gynecology, Columbia University, New York. Cloth. Price, $2. Pp. 164. New York, Toronto & London: Oxford University Press, 1942.

These books are written in outline form and are officially designed for busy practitioners and medical students. They may be useful for the general practitioner who must look up quickly just enough information on which to "get by" on the treatment of some clearcut and relatively uncomplicated case. They may also be useful for the medical student studying for examination or for the physician whose formal medical training lies far in the background or who has specialized and who must review quickly fields other than his own in order to pass some state licensing examination.

Atlas of Ophthalmic Pathology. Prepared at the Army Medical Museum, Office of the Surgeon General, U. S. Army, from Material in the Registry of Ophthalmic Pathology. By Elbert DeCoursey, Maj. Medical Corps U. S. Army and others. Third edition. Paper. Price, $5. Pp. 142, with illustrations. Omaha: American Academy of Ophthalmology and Otolaryngology, 1942

This is the third edition of the Atlas of Ophthalmic Pathology prepared at the Army Medical Museum from the material in the Registry of Ophthalmic Pathology by Col. J. E. Ash and Major Elbert DeCoursey. A new method of production enables this excellent atlas to be sold at a substantial reduction in cost and in larger quantities, so that the academy has now adopted it as a textbook for its home study course. There has been essentially no change in this new edition of the atlas from the previous edition, and it continues to be an excellent textbook for instructional purposes for both student and clinician.

Germany's Master Plan: The Story of Industrial Offensive. By Joseph Borkin and Charles A. Welsh. With an introduction by Thurman Arnold. Cloth. Price, $2.75. Pp. 339. New York: Duell, Sloan and Pearce, 1943.

Long before the beginning of World War II, German industry had been endeavoring to set up a system for worldwide control over electrical equipment, drugs, chemicals and basic war materials. Many of the facts regarding this system of control are here made available by writers who have been in intimate touch with the investigations on the subject. Joseph Borkin was for many years economic adviser to the Antitrust Division of the Department of Justice. Some of the facts regarding the relationship of the German drug industry to some portions of the American drug industry will come as revelations to American readers and indicate the need for control over international agreements of this type in the future.

The Psychology of Supervising the Working Woman. By Dr. Donald A. Laird, Industrial Consultant, with the assistance of Eleanor C. Laird, Research Librarian. Cloth. Price, $2. Pp. 202, with illustrations. New York & London: McGraw-Hill Book Company, Inc., 1942.

The opening chapters are a consideration of the history of the employment of women in industry and the factors and motivating forces which have brought about an increase. The remainder of the book is a tedious discussion of the physiologic, physical, mental and emotional differences of men and women as they affect their working capacity. Whereas the title indicates that the book might be of value to the employer or supervisor of women, it actually falls far short of giving practical suggestions or methods outside of making women comfortable at work.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

SMALLPOX VACCINATION—DURATION OF PROTECTION

To the Editor:—During this wave of enthusiasm in the Philadelphia area I have had occasion to vaccinate one large group against smallpox. The puncture method was used. This group consisted of 389 factory workers. The inspection of results of the procedure showed positive takes in 326 of the 389 and 63 negatives. This represents approximately 84 per cent of individuals who were probably not immune to smallpox. Since this interpretation of the result is generally accepted, I am curious to know whether or not, in the opinion of experts, this is the case. Could it be that a more potent vaccine is being used at the present time than has been used heretofore? Are we to consider these positive takes with the typical vesicle and local inflammatory reaction appearing from four to seven days after the procedure as actually cowpox? In this group 1 patient gave a history and showed the results by pockmarked skin of having had smallpox approximately thirty years ago. She too gave a positive reaction. If we are to interpret these as positive takes, it probably indicates that this large group of persons was susceptible to smallpox. In the case of an epidemic, the seriousness of the situation should not be taken lightly, since this is a cross section of our working population.

Abraham Cohen, M.D., Philadelphia.

ANSWER.—"The duration of the vaccinal protection and the manner of its disappearance are certainly a most important part of the practical side of vaccination. This question must be considered for the purpose of determining when precautions should be taken to renew the protection which has become deficient. The answer is unfortunately a complicated one, since there is evidence to show that the duration of absolute immunity after a single vaccination extends no definite period of time but that it is subject to great individual variations. After a single successful vaccination in childhood it has sometimes been observed that all subsequent attempts at vaccination failed, and that the individual never acquired variola in spite of frequent exposure to the danger of infection. In these cases it is certainly justifiable to assume that the single vaccination has caused a permanent protection just as one attack of variola usually renders the individual immune to any subsequent invasion of the disease. What is the rule for variola, however, is unfortunately only the exception for a single vaccination. It much more frequently happens that the individual reveals a fresh susceptibility, at least to inoculated vaccinia, after a more or less lengthy period of time. Cases are sometimes encountered in which a revaccination is successful after the short space of two or three years, but such occurrences are even still more exceptional than the instances of a permanent protection. They are consequently no guides for either practical purposes or legislative action and this is especially true, since the corollary of a similarly early attack of variola after vaccinia is as yet wanting. The renewed susceptibility to inoculated vaccinia, nevertheless, always makes one fearful lest an infection with smallpox would have been possible in these cases if the variolous virus had found an opportunity to effect an entrance into the system. If a longer period of time has elapsed since the vaccination, a secure protection against variola is to be no longer counted upon; the epidemics of smallpox in the nineteenth century sufficiently demonstrated that the number of cases in individuals vaccinated but once was far from infrequent. The individuals who were vaccinated in the first year of life were scarcely ever attacked until after the fifth year, and it was not until the tenth year was reached that the number of individuals attacked rapidly increased. It might be stated from these observations that the average duration of the protective effect of a single vaccination is about ten years, and that it certainly does not extend much beyond this period. The vaccination statistics confirm this view to a certain extent, since they show that after the tenth year about 60 per cent (and over) of all individuals vaccinated in early childhood show a renewed susceptibility to inoculated vaccinia which is more or less pronounced" (Nothnagel's Encyclopedia of Practical Medicine, American edition, Philadelphia, W. B. Saunders Company, 1908).

There is no reason to doubt that approximately 84 per cent of the persons revaccinated recently in a certain group of workers in Philadelphia showed a considerable amount of susceptibility to vaccinia and supposedly to smallpox also. This would be more likely to be true had these people previously been vaccinated only once and at an early time in life. The fact that a person who had had smallpox showed a "positive take" is not surprising, because it is well known that, while a recent successful vaccination protects against smallpox, an attack of smallpox does not always protect against inoculated vaccinia. The findings of Rivers, Ward and Baird (*J. Exper. Med.* **69**:857 [June] 1939) clearly show that the potency of a vaccine lymph used for revaccination makes a decided difference in the number of persons who show incomplete protection against smallpox. The physician doubtless used a potent virus.

RADON SEEDS VERSUS TONSILLECTOMY

To the Editor:—Recently I have heard many discussions regarding the application of radon seeds as a substitute for tonsillectomy. What is the consensus on this treatment? Can you refer me to some articles on the subject?

M.D., Massachusetts.

ANSWER.—Most of the reports concerning the substitution of radon seed application for tonsillectomy appear in the literature of the early 1920's and little is to be found since then. However, the otolaryngologists and radiologists appear to have reached certain conclusions in which most of them concurred and which apparently have changed little since then, namely the use of radon in case of hypertrophy or other nonmalignant diseases of the tonsils.

The methods employed consist in the use of surface application or the insertion of removable or permanent seeds directly into the tissues. Variations in technic are naturally manifold, although they are all similar in their essentials. The details can be obtained from many of the articles hereinafter referred to.

S. Withers of Denver (*Laryngoscope* **32**:163 [March] 1922) favored the use of radon applications but felt that the experience up to that date was insufficient for forming a definite opinion.

C. F. Robinson (*Am. J. Radiol.* **9**:558 [Sept.] 1922) reported 75 cases (inoperable) which he treated with good results.

F. E. Simpson of Chicago (Radium Therapy, St. Louis, C. V. Mosby Company, 1922) stated that in selected cases radium (radon) treatment may be substituted for operative removal of hypertrophied tonsils.

B. R. Shurly (THE JOURNAL, Sept. 8, 1923, p. 800) opposed the substitution, although he had had no personal experience with radium or radon.

W. A. Wells of Washington, D. C. (*South. M. J.* **14**:907 [Nov.] 1921; *Laryngoscope* **33**:681 [Sept.] 1923) believed that we can produce atrophy which "we may liken to normal physiological atrophy and all physical evidences of disease are made to disappear."

F. H. Williams of Boston (*Am. J. M. Sc.* **168**:18 [July] 1924) reported 101 cases and advised the use of radon in selected cases.

J. W. Babcock (*Ann. Otol., Rhin. & Laryng.* **34**:834 [Sept.] 1925) opposed its use, although he himself had employed only x-ray therapy rather than radon. He reviewed 49 authors and found 28 to approve of 10 (including the author) who believed it was of little value, because he claimed that radon does not remove the tonsil as a potential focus of infection.

J. Coleman Scal of New York (*Beth Israel Hosp. Bull.*, Nov. 2, 1924; *New York State J. Med.* **32**:198 [Feb. 15] 1932; *Laryngoscope* **42**:620 [Aug.] 1932) reported over 200 cases and favored the use of radon in inoperable cases. He had good results.

S. J. Crowe of Johns Hopkins, Baltimore (*Arch. Otolaryng.* **33**:618 [April] 1941), advised the use of surface radon applicators for treating recurrence after having treated more than 100 cases.

The consensus seems to prefer the use of radon or radium to tonsillectomy in inoperable cases (whatever the cause) or in treating recurrent growths following initial tonsillectomy. In view of the potential danger of radon application anywhere in the body, it would be advisable to consult with a radiologist skilled in radon therapy before employing this method of treatment. However, operative removal of the tonsils is still the method of choice in dealing with uncomplicated diseased tonsils.

ALLERGY IN BUTCHER SHOP REFRIGERATOR

To the Editor:—A patient with chronic sinusitis and rhinitis, a butcher, is apparently made worse by going in and out of the refrigerator. He had a vacation of six weeks last winter and his condition cleared entirely. Do you know of any means by which I could protect this man's nose from the cold air while in the refrigerator?

S. A. Olson, M.D., Glendive, Mont.

ANSWER.—The data given in this inquiry suggest one of two possibilities. First, the patient may be sensitive to inhalants present in a higher concentration in the refrigerator than in the butcher shop. Either animal danders, meats (sensitive to

odors) or molds may be present in much higher concentration in the refrigerator than elsewhere in the patient's environment. If this diagnosis is tenable, the patient should have similar trouble all the year round on entering the refrigerator. Conditions, however (the type of meat or fowl stored), may be different in the winter than in the summer. If he is mold sensitive he should have symptoms in the summer, especially during humid or rainy weather. The possibilities suggested should be investigated by clinical exposure to the various antigens separately, i. e. the effect of entering a damp basement, the effect of inhalation of the various danders found in a butcher's refrigerator. Cutaneous tests with the different allergens may be used to aid or confirm the diagnosis. If the patient is clinically sensitive to an allergen or allergens that cannot be eliminated, gradual hyposensitization by injection may be tried.

Physical allergy (cold sensitivity) is the second possibility suggested by the history. If this explains the symptoms, the patient should have similar trouble when he is exposed to comparable temperature changes as when entering the refrigerator, i. e. when going outdoors during a cold day with no more protection from the temperature change than when exposed to the refrigerator temperature. This should be tried for confirmation of the diagnosis. If the condition is classifiable as physical allergy, an attempt may be made to increase the patient's tolerance by gradually increasing exposure to cold (ice rubs over a wide surface of the body, increasing the time of exposure gradually; cold baths, gradually decreasing the temperature). In addition, daily injections of histamine diphosphate may be tried in increasing doses. It is advisable to start with a low dose (about 0.1 cc. of 1:10,000 solution. This dilution may be given once or twice a day in increasing doses until 1 cc. of 1:10,000 solution is tolerated. The 1:1,000 solution of histamine diphosphate is then used, starting with 0.1 cc. and gradually increasing the dose to about 0.5 cc., if tolerated by the patient. When the dose of 0.2 to 0.3 cc. of the 1:1,000 solution is reached, the injections may be spaced at three to four day intervals. If the patient responds favorably to this treatment, the maximum dose reached without untoward symptoms may be maintained at once every three days to once a week for as long a period as required.

SHORT WAVE DIATHERMY FOR ANGINA PECTORIS

***To the Editor:*—Can you furnish me with any information concerning the use of short wave therapy in the treatment of angina pectoris?**

E. B. Miller, M.D., Manistee, Mich.

ANSWER.—Short wave diathermy has been employed extensively by various European workers for treatment of angina pectoris. Although these European workers have said that its value is generally recognized, it would seem difficult to evaluate the clinical results in this disease because of the variable course which it tends to follow.

The usual procedure has been to apply an electrode directly over the precordium and another somewhat larger electrode over the back, or to place a pancake coil directly over the precordium. It is argued that the direct heating of the cardiac musculature tends to improve the circulation in the coronary vessels and also to reduce the blood pressure, which effects would tend to be beneficial in the presence of angina pectoris. The procedure should be employed only cautiously under careful and expert observation by trained cardiologists.

Although more than twenty European writers have reported favorably concerning the value of applications of short wave diathermy to the cardiac area, none of them seem to have made any comparative studies concerning its clinical usefulness as compared with other forms of treatment.

It has been pointed out by William Bierman (The Medical Applications of the Short Wave Current, Baltimore, William Wood & Co., 1938) that in the treatment of angina pectoris by means of short wave diathermy one should record the blood pressure every two minutes. If the pressure tends to rise during the session, the application either is discontinued or is diminished in volume. Bierman cites the work of many European physicians in treating angina pectoris with short wave diathermy. He mentions that "Seigen treated 770 patients suffering from angina pectoris, employing short wave in addition to other routine forms of therapy. He had the opportunity of reexamining many of these patients several months after treatment. The electrocardiograms taken at the end of the treatment showed surprising disappearance of all pathologic changes seen initially." Bierman points out that there appears to be unanimity of opinion among the workers in this field that caution should be exercised in the administration of short wave current for the treatment of angina pectoris. Bierman concludes "It is difficult to prove any special value to the use of short wave current in the treatment of angina pectoris because spontaneous remissions occur in this disease, and because rest and other measures are applied concurrently."

One may conclude then that to date there is no conclusive evidence that short wave diathermy is effective in the management of angina pectoris.

CONTINUOUS DRIP THERAPY OF GASTRODUODENAL ULCER

***To the Editor:*—How long can a patient be medicated with a small stomach tube by way of the mouth or nose, in an attempt to treat a stomach ulcer temporarily by means of the various new aluminum compounds and the milk bicarbonate treatment, recently mentioned in The Journal? I was glad to see several articles recently on the management of gastroduodenal ulcer, but it is not yet clear to me just how many days or weeks a tube might be allowed to remain. I have a patient who is extremely nonsensitive locally to the presence of the tube in either the nose or the mouth, with remarkable emotional equanimity. He is so emaciated that he dreads an operation at the moment and wants to try the alkaline treatments before submitting to an operation, which an excellent physician told him was out of the question—absolutely the wrong thing in his case. I realize that no definite limits can be established for things of that kind, and I recall that many of us felt, years ago, that intravenous solutions, transfusions and the like ought to be given someday and could be given someday over hours and perhaps days by the bold surgeon who threw aside some of the popular notions of blood clotting and the like prevalent in those days. This man has had a nasal tube leading to the cardia inserted for over two weeks; but for several hours (up to eight) in each twenty-four hours after the first few days the tube has been removed to avoid nasal and esophageal infection and ulceration, the patient meanwhile being allowed to amble about the hospital, sipping on occasion the same milk bicarbonate solution which was being used in the drip, along with other milk and egg drinks and aluminum jells which could not easily pass through the tube. Information is desired as to the prevalent opinion in matters like this, even though I believe I shall have to resort to surgical treatment because of the deep penetration of the lesser curvature ulcer. What is the longest record of nasal-stomach or stomatogastric intubation with no withdrawals or with temporary ones, as I am carrying out?**

John P. Rankin, M.D., Elyria, Ohio.

ANSWER.—According to Palmer (chapter on peptic ulcer in Diseases of Digestive System, edited by S. A. Portis, Philadelphia, Lea & Febiger, 1941) "the administration of food or antacid or both by means of a continuous drip into the stomach has much to recommend it in the treatment of gastroduodenal ulcer. The feeding is in effect a fistula feeding, eliminating the potent cephalic phase of gastric secretion. More complete control of the acidity of the gastric content can be maintained by the day and night use of the drip method than by any other procedure." The continuous drip method is not usually maintained for more than seven to fourteen days, occasionally for three to five weeks.

Winkelstein, Cornell and Hollander (THE JOURNAL, Nov. 7, 1942, p. 743) have found that the majority of patients so treated experience little or no difficulty in retaining the intragastric tube especially when the soft latex tube is used. According to these authors, patients learn to administer the drip treatment to themselves and may continue this therapy at night for a period of many months and even for as long as two or three years. A possible disadvantage of the drip treatment is the associated dryness of the throat, which may lead to esophagitis or esophageal ulceration. This form of therapy is contraindicated in the presence of infections of the upper respiratory tract in order to avoid the development of pneumonic complications.

The ulcer of the lesser curvature described should heal completely or almost completely within three to four weeks of such therapy if it is benign. If healing is not proved roentgenologically or gastroscopically or both, a gastric resection is indicated because the ulcer may well be malignant.

WALKING ON TOES INSTEAD OF SOLES OF FEET

***To the Editor:*—Will you please give me the significance or causes of a person's landing on his toes when walking, instead of landing on the heel first, as is usually done? Is this condition hereditary or is it acquired? I know of two persons who had this peculiar gait with no evidence of any present or past history of diseases or injury.**

William Campbell, M.D., Valley City, N. D.

ANSWER.—In walking, sometimes normal persons will land on their toes instead of the sole of their feet. In Friedreich's disease (spinal heredoataxia) the foot becomes decidedly arched, shortened and stubby (pes cavus) and in walking the feet land on the toes. The condition is usually hereditary, although it can occur in any disease in which there develops an excessive pull of the muscles attached to the foot. This is especially true in the pull of the muscles of the calf and sole. Thus infections in the foot and calf, injuries of the foot and leg, long continued posture as from a cast and spinal cord disease may result in such a type of walking.

DESICCATED THYROID IN HEART DISEASE

To the Editor:—Dr. Arnold Lorand of Carlsbad, Czechoslovakia, in his book "Old Age Deferred" states that thyroid can be given in certain forms of heart disease. He says it is practically as useful as digitalis and can be given simultaneously with it. The directions accompanying the product "Proloid" states that this substance should be given only under the supervision of the physican, and its use is generally contraindicated in heart disease and in hyperthyroidism. I realize, of course, that it is contraindicated in hyperthyroidism, but I would be pleased to know why thyroid is contraindicated in heart disease. M.D., Tennessee.

ANSWER.—The only indication for desiccated thyroid in heart disease is the presence of hypothyroidism or myxedema heart. In patients with myxedema heart, the size of the heart is increased and its action weak. Edema, commonly generalized, is present. Improvement does not occur following the use of digitalis but promptly sets in when thyroid is administered. This condition is not common. When myxedema heart does not complicate hypothyroidism, some improvement in the heart's action may also follow its use. However, patients with heart disease should be given desiccated thyroid with great caution because it may precipitate the onset of coronary thrombosis.

IDENTIFICATION OF FUNGI AND MOLDS

To the Editor:—By means of which textbooks or by what authorities can the identification of a microscopic fungus be made? The organisms, being homogeneous, are present in large numbers on Sabouraud's medium contained in a Petri dish. They were obtained by exposure of the culture medium to the atmosphere of an anthracite coal mine. How can a photomicrograph of such a culture be made? Would the latter step be advantageous in the procedure of identifying the organism?

M.D., Pennsylvania.

ANSWER.—A key to most of the genera of fungi is given in Clements and Shear's The Genera of Fungi, New York, H. W. Wilson Company, 1931. It refers to Latin descriptions in Saccardo, and these, or monographs dealing with the various genera, must be consulted in order to verify the identification. Short cuts are generally unsatisfactory either because they are misleading or because they omit most of the enormous number of genera of saprophytic fungi.

In identifying molds, the fungus must be isolated in pure culture and examined as soon as the characteristic spores are formed. The optimal time for examination varies widely. With two needles a bit of the mold from a suitable culture should be momentarily moistened in alcohol and then teased apart in a drop of 10 per cent sodium hydroxide or other mounting fluid on a glass slide. A cover slip is placed over the drop, and the specimen is ready for microscopic examination. The significant features are the size, shape, color and septation of the spores and the manner in which they are borne. A photomicrograph can be made in the usual way from this specimen but is helpful only as a record.

HOME PASTEURIZATION OF MILK

To the Editor:—Could you tell me the name of a simple home apparatus for the pasteurizing of milk? A small apparatus such as could be used for an ordinary household is what I have in mind.

Roy G. S. Dougall, M.D., Cobleskill, N. Y.

ANSWER.—It does not appear that any special type of apparatus is necessary for home pasteurization of milk. The United States Public Health Service recommends that the milk merely be heated over a hot flame to 155 F., stirring constantly; then the vessel should be placed immediately in cold water and stirring continued until the milk is cool.

ZOO ANIMALS AND PARASITIC INFECTIONS

To the Editor:—Here as elsewhere the children delight in feeding the tame zoo animals by hand. The children's fingers come in touch at least with the animal's tongue and are thoroughly moistened by its saliva. I wonder if parasitic intestinal diseases cannot be transmitted that way, particularly if the children eat, as they doubtless often do, without thorough cleansing of their hands, possibly even out of the same popcorn box from which they have just been feeding the animals. The animals chiefly concerned are all more or less closely related to the deer family.

M.D., Massachusetts.

ANSWER.—[This inquiry was referred to Dr. Herbert L. Ratcliffe, pathologist at the Penrose Research Laboratory, Philadelphia Zoological Garden, whose reply follows:]

Since 1936 we have had here a so-called Baby Pet Zoo, where children may feed and fondle small animals of all types. During these years the average annual attendance has exceeded 50,000 and we have not had any indication that children may become infected with intestinal parasites from these animals. There is, of course, a minor danger in that cysts of intestinal protozoa might be transmitted from apes and monkeys to children, but the only protozoan of significance would be Endameba histolytica, and our animals have been examined for this organism.

There is a decidedly greater danger that our anthropoids may become infected from the children rather than the reverse. As far as deer and related animals are concerned, these rarely carry parasites that might be infectious to man by simple contact.

OBESITY OR FRÖHLICH SYNDROME IN INFANT—HORMONAL THERAPY

To the Editor:—A woman has brought to me her boy, aged 2, who, even at this early age, appears to be an example of the Fröhlich syndrome. May I ask you to give me an opinion on the following questions: Is it too early to begin treatment? Is there any gonadotropic substance which can be given orally? For treatment, either oral or by needle, is testosterone propionate recommended? M.D., Michigan.

ANSWER.—The diagnosis of the Fröhlich syndrome depends on demonstration of obesity plus a genital dystrophy; usually this refers to hypoplasia of the genital organs. Unless this is demonstrably present in a 2 year old boy, the only safe clinical assumption is that one is dealing with obesity. It is never too early to begin appropriate dietary restrictions for the control of obesity.

There is no gonadotropic preparation which is active when administered orally. Testosterone propionate is not gonadotropic. It is substitution of a material believed to be the hormone produced by the interstitial cells of the testicle. Certainly it does not stimulate the testis, which is a requisite for a gonadotropic hormone. Testosterone propionate would not be used, therefore, in the treatment of a genital dystrophy unless it had been demonstrated that stimulation of the testis was impossible and substitution for testis activity is desirable. Such a situation is not believed to exist prior to the age of puberty.

MUCOSA OF BRONCHI AND SINUSES IN ASTHMA

To the Editor:—Will you please furnish me with information on the changes that take place in the bronchial epithelium in asthma? Do the same changes take place in the epithelium of the mucous membranous lining of the nose and paranasal sinuses? H. D. Coles, M.D., Chicago.

ANSWER.—The characteristic changes found in the mucosa of the bronchial tubes and sinus mucosa of asthmatic patients are the static edema of the submucosa appearing almost like a hyalinization and the presence of numerous eosinophils. The changes in the epithelium itself will vary according to the degree and duration of secondary infection. Therefore one may see much more advanced destruction of the epithelium of the sinus mucosa than is present in the bronchial tubes. At any rate these changes are not characteristic, consisting of the increase in the number of goblet cells, destruction of ciliated epithelium and replacement with cuboidal or squamous cells. Hyperplasia is nearly always present, and in the sinuses one frequently finds cystic degeneration and polyp formation.

LOCAL OR GENERAL ANESTHESIA FOR ADULT TONSILLECTOMIES

To the Editor:—To help settle an argument as to the relative merits of local or general anesthesia in tonsillectomies of adults only, would you please answer the following: Given an adult with no complicating factors who presents himself for tonsillectomy, what is the trend today as to anesthesia? Is local or general anesthesia preferred?

Samuel Pritzker, Captain, M. C., A. U. S.

ANSWER.—Local and general anesthesia with variations and refinements are both in use in the hands of capable surgeons for the removal of tonsils of adult patients. Each type of anesthetic has its merits and shortcomings. Furthermore, local custom decrees to some extent which one is favored. It can be fairly said that there is no decided trend in a specific direction favoring one or the other. In New England the tendency remains to use general anesthesia. In other parts of the country, and particularly in the Middle West, local anesthesia appears to be the one most often chosen. All this applies only to normal situations as posed in the question.